

HOME NURSING

ISABEL MACDONALD

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HOME NURSING



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TORONTO

HOME NURSING

WITH NOTES ON
THE PRESERVATION OF HEALTH

BY

ISABEL MACDONALD

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LECTURER ON NURSING AND HYGIENE

TO THE COUNTY COMMITTEES OF FIFE AND HADDINGTON

TO THE COUNTY COUNCILS OF STIRLING AND KINROSS

AND TO THE CARNEGIE DUNFERMLINE TRUST

LATE LECTURER ON HOME NURSING, SCOTTISH NATIONAL EXHIBITION, 1908

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*"It is very good for strength
To feel that someone needs you to be strong"*

PREFACE

THE woman who buys a medical book and proceeds to prescribe for herself, usually "gets a fool for a" —patient. Even when pursued by the most intelligent lay mind, study and experiment in regard to medicine are very apt to lead to undesirable results, while, in the hands of the ignorant and impulsive, the very best medical books may be positively dangerous. No woman, however, who aspires to fulfil a woman's life, with all its joys and sorrows, its cares and its responsibilities, can ever know too much about practical nursing. Without dwelling on some tragic results of ignorance in regard to this subject, it is quite certain that, in the home, patients often have to endure unnecessary pain and discomfort, owing to no lack of devotion on the part of those who are nursing, but simply because the latter do not know at times what could be done to improve matters. It is quite impossible for the busy doctor to guard against every mistake into which those who are nursing may fall, and how often do we hear that sad refrain, "had I but known then." That women are alive to the importance of the subject has been very clearly brought to my notice by the large numbers in which they come out to my lectures, by the close attention with which they watch the various demonstrations, and listen to any information I may have to offer them, dry and inadequate although

it may often be. Also by the many questions asked, and by requests at the close of the lectures for a repetition of the demonstrations given. I feel that those lectures are, in themselves, hardly calculated to produce such lasting effects as might be desired. It is not to be expected that the busy mother with her own load of anxieties and worries can retain in her mental grasp all the manifold details that have been placed before her, often perforce in a very concentrated form. True, many do take notes, but these, hurriedly set down as they are, might not prove absolutely reliable even should they be within reach when the need for them arises. Therefore there is, I think, room for a work written in simple language, and showing more fully than is possible in a lecture how to alleviate pain and discomfort, how to avoid pitfalls and mistakes, and how to help in saving valuable lives in times of sickness and danger. It is not always possible to have a trained nurse in the home when sickness visits it, as inevitably it will at some time or another; and it is my earnest hope that my little book may play its own part during times of strain and trial in teaching something of how one may, to some extent, lighten the burdens of those whose lot it is to suffer. There is no woman worthy of the name who has not at one time or another to care for the sick, and, although written as a supplement to my lectures, I would fain hope that my little book may carry some help to many an anxious sister whom I cannot reach with my voice.

As I intend my book to be more one for reference in time of need than for consecutive perusal, I trust

that my readers will forgive what might appear unnecessary repetition occasionally.

I have inserted a few chapters on home hygiene, but have not gone into this subject in any way exhaustively, as the book is intended primarily to be one on home nursing. Also, I have added some notes on infant rearing; because it appears to me such a terrible thing to have to admit that the appalling mortality among young children, besides much debility, deformity, and disease, are due in very large measure to ignorance and carelessness, and therefore are capable of being prevented.

When not drawn from my own personal experience the information offered is based upon the teaching of the very highest authorities, whose works I have from time to time read. Here, too, I should like to take the opportunity of expressing my gratitude to some members of the Staff of the Royal Infirmary, for teaching I received from them during the years when I took my training there. Chief among those to whom I would acknowledge my indebtedness are Miss Herriot, Assistant Superintendent, Royal Infirmary, Edinburgh, Sister Wilson, Wards 10, 11 and 12, and Sister Watt, Skin Department, Royal Infirmary, also Miss Turnbull, now Matron of the Medical Mission Hospital, Plaistow.

My thanks are due also to Messrs. Young, Surgical Instrument Makers, Edinburgh, for the use of some of their blocks.

I. M.

BALADO, KINROSS, N.B.,
5th February, 1909.

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CHAPTER I.

WHAT A NURSE SHOULD BE

IN regard to a nurse's duty towards her patient there are a few points which I would like to mention apart from the actual details of nursing itself.

Ever be on the alert to anticipate all your patient's wants however small, yet without that appearance of fussy desire to please which, to a patient, is usually only a source of irritation. Be always gentle and kind with your tongue as well as with your hands, and try to make it seem a pleasure to perform all the little duties for your patient, because it will be so pleasing to him if he feels that they are done willingly. At the same time be firm and able to exert your authority, although it is never wise to make it felt in matters which are of no consequence, as then it may become a very conscious source of irritation to the patient.

Learn to be observant, so that you may be able to read every change in your patient's face or position without his having to exert himself to explain his condition or desires. You can watch a patient without ever allowing him to have the consciousness that he is being watched. In time you will become almost unconscious yourself that you are doing so, and yet no detail in his condition will escape your observation. People talk a great deal about a nurse's control over her patient, and yet the secret of this power or

control is based almost entirely on the ability to understand his needs. It arises chiefly out of a combination of two important qualifications in the making of a nurse—sympathy and observation. Sympathy, along with observation, will teach you a great deal in a sick-room. It will teach you, when tired and tempted to be irritable, to put yourself in your patient's place, and to know something of what his sufferings, both mental and physical, are. Then you will not fail to be gentle in tone and manner towards the invalid, for sympathy and gentleness go hand in hand; and when they are ill and weak, people are sure to be more sensitive to any note of roughness or impatience in your voice or manner. It will teach you to be ever careful of the feelings of your patient, so that never, if it can be avoided, will you lead him to think of any repulsive feature in his malady. It will teach you patience even when the invalid seems irritable beyond all fairness, because then you will observe that what might appear bad temper is due entirely to nervous debility and weakness. It will teach you when you ought to speak and when it is better to keep silent, how to anticipate all your invalid's most trivial needs, how to move the heavy body or raise the languid head, how to pass into and out of your sick-room. It will teach you to make your patient the first consideration and to think last of yourself. In fact, the whole question of whether you are to prove a good nurse when some sufferer is entrusted to your care, or only a jarring, but necessary, machine will hinge upon the possession or the lack of sympathy and a cultivated habit of observation. Moreover, if you let your patient feel that you realise what he suffers and that you sympathise with him, you sometimes improve his condition, because he is much more apt to be fretful and nervous if he thinks that those about him fail to understand his discomfort, and the cares and

troubles that sometimes seem to haunt his sick-room. Sympathy does not mean a continuous, dolorous echo of your patient's complainings, but rather the power to understand his feelings and his needs. Therefore there should not be brooding and harping on the discomforts and evil fortunes of the moment, but rather a cheery optimism, living for the days when recovery or at least improvement may bring back something of the "joy of living." Cheerfulness is better than medicine to those who are ill.

Cultivate perfect accuracy in observation, for small things often count for a great deal in matters concerning an invalid. Be accurate, too, in reporting all the conditions observed to your medical man. Accuracy, however, must not end with giving a report. It entails a conscientious determination to bring every duty performed to the very utmost limit of perfection, and nowhere is this accuracy more to be desired than in our sick-rooms. Carelessness in performing the necessary duties there must inevitably lessen the comfort of the patient, if it does not give rise to results still more serious.

Presence of mind is a quality invaluable in a nurse. It gives a quiet collectedness in moments of emergency which will lead one to see immediately what is the best thing to do, and which will enable one to accomplish this with steady nerve and hand. Florence Nightingale says that in her opinion presence of mind and gentleness stand in the very foreground of a woman's capabilities, and that "the entire absence of self—self-pleasing, self-love—is the ground-work of presence of mind." Some people may contend that all are not so constituted that they can be calm and able to think and act in moments of danger, and, especially in people of weak will power, this may be quite true. Yet there is no doubt that, when the occasion arises, by self-control, or strength of will, as one may please to call it, combined with self-

forgetfulness, one can retain the presence of mind which circumstances demand, and which may be so necessary if serious results are to be avoided. In emergencies one should, by unselfish effort, overcome any natural timidity, and think only of what may be done for the aid of the sufferer. Try to maintain a courage and calmness equal to the occasion, and do not betray nervousness or anxiety for your patient's sake, because, especially in cases of hæmorrhage, this will only increase the dangers of his condition.

Promptness is a qualification absolutely necessary in the making of a good nurse. Be able to think quickly and to act with decision, not only when some unexpected and alarming condition appears, but also in performing what are the daily duties for your patient; because, never while caring for an invalid should one leave, for another time, any little duty that had better be done at once. Again, put yourself in your patient's position and look at things from his standpoint, and you will not fail to perform whatever may be necessary to his greater comfort however tired you are or however disagreeable or troublesome the particular duty may be. Promptness, of course, cannot be dissociated from orderliness. The appliances being used in the sick-room must be kept in their own places, so that you may be able to get them at any moment without wasting time in making a search before they can be had.

A wise nurse does not deceive her patient. Tell him honestly when a dressing will hurt, but at the same time tell him that it will hurt as little as possible. Then, if he has learnt that you make his comfort your first thought, he will feel almost in honour bound to bear the necessary pain as quietly and bravely as possible, knowing that he will be made to suffer no more than is necessary to his recovery. You gain great power in managing your patient if he knows that he can put implicit trust in all that you say.

Habits of quietness must be cultivated in the sick-room, because nothing is so wearying to an invalid or so irksome as noise. Move about in your sick-room quietly and unobtrusively, yet never with the stealthy, nervous movements and hushed whisperings which to a patient invariably prove so trying. While avoiding loud or jarring tones one should speak naturally and clearly, so that the patient may without effort hear what is being said to him. Never in order to "cheer" your patient get into habits of continuous chattering, because this soon becomes a weariness to a person who is ill. In the sick-room, perhaps more often than anywhere else, is silence often "golden." Without being over talkative you can be bright and cheerful, and certainly it is a mistake to wear the look of "sanctimonious depression" which one sees so often in those who are caring for the sick. Never wear a dress in your sick-room which makes itself heard every time you move about. Silk linings or creaky shoes are an abomination there, and ought never to be tolerated. Be careful not to shake the patient's bed or slam your sick-room door. Habits of quietness, in regard to all such matters, can be acquired so that in time they become quite natural to the individual and not a result of apparent and conscious effort.

Be thorough in everything that you do in the sick-room—in the most trivial duties just as much as in performing one upon which the issues of life and death depend. See that each detail is brought to its utmost point of completeness and perfection. This will tend to make everything go smoothly, and will often prevent worry and irritation on the part of the invalid which hinder his progress towards recovery. Unselfish a nurse must be. To put yourself before the patient at any time is quite unforgivable, and means deliberate shortcoming in what is your duty. Here, again, when tempted put yourself in

your patient's place. Obedience to the instructions given by the medical man is a necessity in the sick-room. You are never doing all that you might for your patient if you neglect the smallest part of the treatment prescribed, no matter how trivial to you it may appear. Show that you are to be relied upon to take any trouble, however great or small it may be, if the doctor considers that it is likely to improve your patient's condition.

Always have your patient in such a condition that you could have the doctor examine him at any time.

Be ever neat and dainty in your own person. To me it seems that there can be nothing more objectionable to an invalid than a nurse carelessly and untidily dressed, and whose hands are dirty and uncared for. The garments worn by those who are nursing should as far as possible be of washing material. Not only is this more hygienic to wear in the sick-room than some absorbent and non-washable fabric, but by wearing clothing like this you maintain that appearance of freshness often so much appreciated by the invalid. Your hands should receive special attention when you are nursing. So long as you shirk no duty on their account, it is no mere personal vanity to try to keep them soft and cool and white, because it usually makes an amount of difference to the invalid. So far as it is possible, one should endeavour to prevent them from becoming rough and cracked, because when in such a condition they are much more likely to harbour germs. A most efficacious means of preventing roughness is to rub them occasionally with equal parts of glycerine and methylated spirit. Each time that the hands are washed, except before doing a dressing, they should be rubbed with some ointment or lotion likely to prevent roughness. If this is well rubbed into the skin before drying it will prove still more effectual, although, of course, such a method proves more extravagant than simply using

the ointment after the hands are dried. Often we hear the complaint that owing to the household duties to be performed, and the frequency with which the hands must be washed, it is impossible to keep them nice; but this is a fallacy. If, when they are dirty, you thoroughly wash and brush them (giving special attention to the nails), and then rub a good cold cream or ointment well into the skin, they will always look nice and well cared for, and none the less so if they do bear evidence of the many duties to be performed in the daily round of work in the home. Indeed, I think that hands not used to idleness, and more especially perhaps those accustomed to fine needlework, are more apt to be deft and skilful in nursing, because then the smaller muscles will co-ordinate better and be more under the control of the brain. See that the nails are kept fairly short when you are nursing, and a nail-file is better to use for this purpose than knife or scissors. Keep the cuticle carefully pushed away from the nail, and clip away any rough edges. Very often people do not attend to this, and consequently impurities collect round the nail as well as under its upper margins, giving a dirty appearance to the hands especially repulsive to the patient when the serving up of his meals is concerned.

Try to cultivate always a light and gentle, yet firm touch, when doing anything for your patient.

CHAPTER II.

OBSERVATION IN THE SICK-ROOM.

PERHAPS there is nothing which can go further in the making of a nurse than the cultivation of a habit of observation. Far too often people are regarded as experienced in all that is required in nursing simply because they have been for years with some invalid; but no matter where circumstances may have placed them during various periods of their existence, it is after all only observation which gives experience where the care of the sick is concerned. People, I find, are far too apt to carelessly suppose that discomfort, or perhaps some apparently unfavourable condition, is due to the ailment from which the patient suffers, when very often a little observation on the part of those around might show it to be caused by something partly or entirely independent of the disease, and which a little observation and trouble might remedy. Powers of observation can be cultivated, and in the sick-room especially one ought to do the best one can to acquire such habits. At the same time do not be fidgety in ascertaining detail, and so risk annoyance and irritation to your patient. A nurse ought to train herself to observe a very great deal without any help obtained from questioning the patient, and the latter should be as far as possible oblivious to the fact that he is being watched. Habits of observation ought so to be cultivated

that one can tell what is needful before the patient requires to ask for it.

Notice the general condition of your patient, whether he is pale or flushed, whether anxious-eyed, wide-awake, listless or restless, or whether the face is hollow-eyed and shrunken.

Temperature. To ascertain a patient's temperature use a clinical thermometer ranging from 94 or 95° to 110° Fahrenheit. Between each of the long lines marking off the degrees on this are four small short lines dividing each of those degrees into five points. The point marked by an arrow is spoken of as the "normal" or average temperature of the body. The temperature, however, even in health, varies with the hour of the day. Usually it is lowest about four in the morning, and highest about six in the evening. The point of the thermometer containing the mercury is placed in contact with the skin surface, and the mercury, expanding with the temperature of the patient's skin, rises in the canal up the centre of the thermometer. We find that the intervals supposed to be required for the insertion of different thermometers are very often printed on them, and usually the 30-second thermometer is the best one to use; but no thermometer, however good, should be inserted for less than five minutes in ascertaining a patient's temperature. Before inserting the thermometer always shake the mercury down below 95°. Usually the best position in which to place the thermometer is under the patient's tongue. Ask the patient to close his lips and to be careful not to bite



FIG. 1.—Clinical Thermometer.

the thermometer. By taking the temperature in this way you are likely to have it more accurately than when it is taken in the armpit. Of course one avoids taking the temperature in the mouth just after the patient has been sucking ice, or perhaps drinking hot soup or beef tea, or when there happens to be difficulty in breathing or tendency towards unconsciousness. Then, and in the case of a small child, one can take it in the axilla. (In the latter case it is often best to place the thermometer in the fold of the groin.) Be quite sure that the skin surface in the armpit is first dried, and place the thermometer in such a position that it will only be in contact with the skin of the patient. If carelessly inserted it may chance to rest against the nightdress, or the point may slip down through the axilla altogether, when of course the actual temperature of the patient is not evidenced by the reading on the thermometer. If the patient is weak, then the nurse must support the arm as it lies across the chest, or the thermometer may very readily slip out of position. Occasionally one finds a patient whose temperature is very slightly higher on one side than on the other. Then take it on the side most likely to be the highest, as one does not in any way wish to make matters seem better than they are in giving a report to the medical man. It is well always to take the temperature in the same place, and as much as possible at the same hour each day. Don't make a habit of telling a patient of the rise or fall of his temperature, because, although at the moment it may not be high enough to cause any alarm, there is always a possibility that later on it may become so, and then you may give rise to anxiety and restlessness by a refusal to enlighten the patient as to his condition in regard to this. In acute diseases the patient's temperature is taken, as a rule, every four hours when he is awake. In other cases, or during convalescence, it is taken night and morning. Usually

the readings on the thermometer are recorded on charts which correspond to the various markings on the thermometer, and which are prepared either for morning and evening or for four-hourly temperatures. A patient's temperature should be taken before, and not after, the daily bath or tepid sponging, and when the latter is ordered to reduce the temperature, take this before and after sponging.

Pulse. To count a patient's pulse, use a watch with a second hand; without this it is impossible to count it correctly. Three fingers, and not only one, should be laid over the radial artery at the wrist, and count the number of times that the pulse beats while the second hand goes round once. The normal pulse beat in an adult is from 70 to 80 per minute; but we find it quicker in children, very often 100. The case is sure to be a serious one where you find in an adult a pulse of 120 or 130. A very quick pulse with a very low temperature—one far below normal—is much more serious than a quick pulse with a temperature equally high. Notice whether the pulse is regular or intermittent—*i.e.* missing a beat—whether it is feeble, strong, or running—*i.e.* so hurried that it cannot be counted. Don't take the pulse beat for morning or evening immediately after there has been some unusual exertion or cause for excitement, because then in all probability it will be quickened.

Respiration. To count your patient's breathing again use a watch which has a second hand; but the number of respirations per minute must be counted unconsciously to the invalid, or his breathing cannot be natural. The best plan is to lay the patient's arm across the body just below the chest, place the fingers on the wrist, and count the pulse beat; then, without removing the fingers, go on counting the rise and fall of the chest in respiration, so that your patient may be unaware that you are doing more than taking the pulse. Observe whether breathing is short, shallow,

or deep; whether regular or otherwise; whether it is easy or attended by discomfort or pain. The normal respiration is 18 to 20 beats per minute, but in some diseases, particularly pneumonia, it is often enormously quickened. In cases where there is difficulty in breathing, observe the position in which this is less marked; and, if possible, keep your patient in that position which is apparently most easy for him. Of course, in many diseases a patient cannot be set up, but in others we find that propping the patient in a sitting position makes breathing much more easy than if he were simply left to lie on his back.

Skin. Observe the condition of your patient's skin, whether moist or hot and dry. Observe any blueness of lips, finger tips, ears, or nails. Notice whether the extremities or any other parts of the body are cold. If the patient is in a state of collapse the state of the skin is characteristic. It will be pallid and cold, with perspiration over its surface. If the skin is waxy and sallow in appearance, the patient may be suffering from cancer; while in Bright's disease we find it waxy and yellow. If the skin is white usually but readily becomes flushed for short intervals, very probably the patient is anæmic. Usually in high fever the face is flushed, while everyone knows the hectic flush of phthisis. Very often in pneumonia, where only one lung is affected, we find one cheek redder than the other. Notice any yellowish tinge in the skin or whites of the eyes; we find this condition in jaundice. Of course in fainting the skin is pale.

Tongue. Notice regularly the condition of the patient's tongue. In many diseases it is covered with sordes, a source of great unpleasantness to an invalid. It is always one of the duties of those who are nursing a person with this condition to try to get rid of this foulness as soon as may be, because no patient will be persuaded to take his food with any sort of enjoyment so long as the mouth remains foul,

and the tongue is covered with crusts. Paint the tongue occasionally with borò-glycerine or glycerine and honey, and, twenty minutes afterwards use a small, blunt, bone paper knife to scrape any sordes from the tongue which the glycerine may have softened, rubbing the knife occasionally during the process with a piece of old linen, which can be burned. This is by no means one of the pleasantest duties possible, but none the less is it necessary to your patient's comfort.

In other cases we find the tongue hard and dry; it may have the appearance of raw meat, or, if the patient has been long on milk diet, it will probably be white. Sometimes the way in which a patient puts out his tongue is worth observing. Ask an alcoholic patient to do so, and he will, with a trembling motion, while one who is paralysed will put it out rather towards one side. When the tongue begins to clear up this is a sign that the patient is improving. Very often, in sickness, the whole mouth is parched and dry, especially so in the morning, when the patient sleeps with it open. Very often, too, in sickness, the mouth is foul, just as the tongue is; and again it becomes necessary that the nurse should do what she can to improve matters. If the patient can himself use a mouth wash, give him one of warm boracic, weak Condyl's fluid, or carbonate of soda in tepid water. If he is too weak to do this, then prepare a mouth-wash, and wrap a piece of lint or fresh old linen round the index finger, dip this into the mouth wash, and rub it all round the inside of the jaws and teeth, using a fresh piece of linen as each little bit is soiled. This attention may be tedious, but it is quite necessary in those cases where the teeth are coated with a thick sticky collection of sordes.

Pain. When a patient complains of pain, ascertain exactly the kind of pain, and when and where he

feels it most. Use his own words, in reporting pain to the medical man, because those will describe it most accurately. Probably he will describe it as a stabbing, grinding, nagging, shooting or, it may be, a burning pain; then use the word he does in reporting his pain to the doctor. It is important that a complaint of pain should be carefully reported, because it is frequently a valuable symptom in diagnosis. On hearing a complaint of pain, when it is possible look for some visible sign of it or cause for its presence. It may be possible for you to alleviate or it may not; but still it will be satisfying to your patient if he finds that you realise what it means to him, and are willing to do what you can to give some relief. Nothing will make a patient more restless than the feeling that those about him are indifferent to his sufferings, and unwilling to make an effort to allay them.

Restlessness. Observe any unusually restless condition in your patient. Very often this is due to the bed having become uncomfortable, or to some other remediable cause. Otherwise restlessness is to be regarded as a bad sign.

Appetite. Notice whether your patient's appetite is good. Very often a patient takes his food rather than have the annoyance of being pressed by those about him to take it. One must observe whether he really appears to enjoy it, and asks for more, or whether he takes what he does with an effort. Notice of course the amount taken at each of his meals.

Sleep. Very often in regard to the amount of sleep a patient has had, one finds that there is disagreement between the report of the patient and the nurse, because, if during the night he has slept just lightly and intermittently, probably in the morning he will hardly be conscious of having slept at all. In such a case don't annoy your patient by contradiction.

Get an opportunity of letting the doctor understand that matters have really been better than the patient himself believes, so that, knowing the actual facts of the case, the doctor can more easily decide whether or not a sleeping draught is necessary. In serious cases, a written report should be kept of all that occurs in connection with the invalid; and, if this is done, then the doctor can see for himself what amount of sleep the patient has actually had, and so prevent the invalid's having to listen to a report which he thinks is too favourable. Observe the kind of sleep, and whether the patient talks or groans in it.

Delirium. The occurrence of delirium may be gradual, and its commencement may at first be shown only by a restless look in the eyes, or an occasional wandering in speech; later, there is picking at the bedclothes, and the patient tries to get out of bed. Delirium is at all times to be looked upon as an unfavourable symptom. At times people do not realise this, because so often in this condition the patient appears to lose all pain. This is not any sign of improvement. We have the quiet muttering delirium so often seen in typhoid fever, and the busy, active, wild form which we speak of as delirium tremens. Delirium increases as a rule towards the end of the day. In nursing cases of this kind try as far as possible to humour your patient, or at least avoid aggravating his condition by contradiction or unkindness. Very often some curtain or shadow may be the cause of some delusion giving rise to much unrest, so try whether the removal of anything like this, or perhaps altering the light, will make your patient more quiet. Keep the sick-room always as quiet as possible, and see that the patient is conscientiously and carefully fed, and attended to generally. When comfortable he is likely to be less restless and noisy, so that there is a greater possibility of procuring the sleep so much to be desired in cases

like this. Therefore allow no more coming and going than is actually necessary.

Position. Observe your patient's position. Sometimes one finds a patient less apt to be sick in one position than in another, less apt to be restless or wakeful, or perhaps in a certain position the pain may be less severe. Observe, therefore, the position most likely to give comfort to your patient, and keep him mostly in that. Very often a patient suffering from some abdominal ailment will lie with his knees drawn up, while another suffering from some disease of the lungs will lie on the affected side, because this lessens the work being done by the ailing lung and in no way impedes the functions of the lung that is sound. Often it is a good sign of a patient who has been very ill if instead of lying always sunk on his back he turns to one side.

Cough. Notice whether your patient's cough is deep or shallow, whether it is frequent and troublesome, and whether or not it seems to exhaust him. A wheezy cough is characteristic of bronchitis; one continual and hacking, of fluid on the chest; while a short dry cough accompanied by pain indicates pleurisy. In inflammation of the lungs, the cough is short and sharp. In croup, it is very hoarse. In the early stages of phthisis it is mild, but later on in this disease it comes on in prolonged and exhausting attacks, very painful and distressing to witness.

Expectoration. Observe whether there is any expectoration with the cough, and if so, the character of this, whether sticky, clear, thick and white, yellowish, streaked with blood or "rusty." This rusty colour is a symptom of pneumonia, and must always be kept for the doctor to see. If the chance to be one of phthisis, see that the expectoration is not allowed to become a source of infection to others. (I speak of the care necessary for the prevention of this in a later chapter.) It is important

that where there is some expectoration, the patient should be provided with a spittoon or some utensil to contain it, as it is not desirable that it should be swallowed, and in all probability it will be if the matter receives no attention.

Vomiting. When a patient has been sick, notice what the matter vomited is like. If you find anything unusual in its appearance, it is always safest to keep it for the doctor's inspection. Remove it immediately from the sick-room and keep it covered with a tight-fitting lid or a towel saturated in carbolic lotion until the doctor's arrival. Notice at what time vomiting usually occurs, whether immediately after food or otherwise,—how often during twenty-four hours the patient is sick, and whether vomiting is accompanied by great pain or discomfort. A very alarming symptom always, in a patient, is that sickness spoken of as “coffee grounds.” In appearance it is brown and not unlike coffee, but unfortunately it is not that, but blood. The doctor must immediately be sent for on the first occasion at least; probably for any recurrence he will give his instructions. Meantime get the patient quickly and quietly to bed with the least exertion possible, and keep him there, giving no food until the doctor comes. If ice is procurable small pieces may be given him to suck, while an ice-bag can be applied over the stomach.

Urine. The quantity of urine passed depends upon various conditions, such as the temperature of the body, the amount of fluid taken, the amount of perspiration, and sometimes upon the treatment prescribed. The normal quantity in twenty-four hours is usually something from forty to sixty ounces. The colour of the urine varies; usually it is palest when large quantities are passed. Normally it is clear immediately after being passed. In many diseases, such as diabetes, heart ailments, and in nervous people,

it is pale in colour, while in jaundice it is dark. A dark greenish colour is one of the earliest symptoms of carbolic poisoning. Sometimes urine has a turbid appearance from the presence in it of mucus, blood, or pus. The presence of blood in urine often gives a dark "smoky" colour.

Motions. Notice the frequency and character of the motions—whether thick or fluid, whether scanty or large in amount, whether frothy (which shows fermentation), whether containing mucus, as in dysentery, or whether there are any traces of blood. Should the blood be bright red in colour, then bleeding is in the lower part of the intestine; but if the motions are black, then the bleeding part is nearer the stomach. Observe the colour—whether brown, putty coloured, white, or greenish; also notice any appearance of undigested food. Gall stones can only be searched for by straining through coarse muslin.

Effect of remedies. Always notice the effect of remedies given. Thus if a narcotic has been ordered, notice the kind and amount of sleep, and whether the patient in the morning complains of headache or sickness. If something has been given to relieve pain, observe what effect it has upon the severity and duration of that. If it was given to prevent indigestion, ascertain whether pain or discomfort is lessened, or whether there are longer intervals between attacks of vomiting. Observe whether remedies given for the patient's cough in any way alleviate this. Then occasionally one must be on the outlook for particular symptoms when certain medicines are being given. Where quinine is being administered, ascertain whether there is ringing in the ears; when belladonna is given, observe whether there is dilation of the pupils, or if the drug being taken happen to be opium, then there may be contraction of these. A dark greenish colour

in the urine is a condition sometimes found when the patient is having salol, and points to carbolic poisoning, so that when this is observed it must, at the earliest opportunity, be reported to the medical man.

Before closing this chapter allow me once more to mention the importance, almost the necessity, for keeping a written report of all that happens in regard to the patient throughout the course of each twenty-four hours, at least when the patient happens to be seriously ill. Very useful little note-books are sold for the purpose, with columns drawn up for the hours and minutes of sleep, for the nourishment, medicines, stimulants etc., given, and for the patient's temperature, pulse, and respiration, besides other particulars, and thus everything can be jotted down, with a note of the hour at which it occurred. It does help matters to have a record like this carefully and clearly kept. At the end of each twelve hours the various quantities of each kind of nourishment taken can be added together, also the intervals of sleep; and if this record is handed to the doctor during his visit, difficulties are avoided which might arise were it necessary to describe fully the patient's symptoms in his presence. Again, a book of this kind is helpful where different people are nursing the patient in turn, because when the hours at which the different medicines etc. were given are put down, then there need be no difficulty in knowing just when the next dose is due.

The two main objects of "Observation in the sick-room" are that you may be able to see in what way you can add to your patient's comfort, and also that the medical man may have a clear statement of what has been the patient's condition during the intervals between his visits. He, more quickly than anyone else, can observe and understand those symptoms which are more or less permanent, and therefore

visible during the short intervals while he is in the sick-room; but the nurse, who is with the patient during the greater part of the twenty-four hours, has opportunities which often the doctor cannot have for observing changes in her patient's condition, and may be a great help to him if she carefully observes and reports such changes.

CHAPTER III.

THE SICK-ROOM.

PEOPLE seldom realise the wonderful effect which a patient's environment has upon his condition. Often we find them quite content that his bed is fairly comfortable and his food well cooked. To me it seems that an invalid's surroundings count for much. Brightness and sunshine must have a wonderful effect on the nervous system during recovery from some serious illness, although, in its more acute stages, much shadow may have been necessary to give a restful atmosphere to the sick-room. The best outlook for a sick-room is a south-eastern one. Very often the patient is awake before any other member of the household, and I have often found the varying lights cast over the landscape by the rising sun giving much real pleasure. For a sick-room sometimes a southern aspect is said to be the best, but this gives us often the difficulty of having a very bright afternoon sun to contend with. Blinds may be drawn, but, if the patient is not very ill nor caring to sleep, these give a depressing effect. Much can be done at times by altering the bed in order that the light may not cause glare in eyes easily strained because of weakness and ill-health. If the bed is light and narrow it is wonderful what variety one can sometimes give by occasionally changing its position in the sick-room. Of course while the patient is

very ill you try to ensure quiet and rest by having as little variety as possible in this or any other way, but, once he is getting better, much can be done to break, to some extent, the tedious monotony of days spent in bed. As a general rule, one may say that the bed should not be placed against the wall, as nursing is much more easy when one can reach the patient from either side. Very often a patient likes to have his bed parallel with the window at times, just to give some little variety in the usual "interior of a sick-room." Don't, however, draw the bed up so close to this as to place him under a downward current of air cooled by contact with the glass of the window. If the bed be placed a few feet from the window and parallel with it, the patient will, without effort, be able to watch the changes in trees and sky, or perhaps the progress of a garden from day to day; but don't let the outlook be on a busy street, as that might soon become a source of strain and weariness. At other times the bed can be drawn into such a position that, without overmuch glare, the light will be the best for reading or writing.

Windows. If possible, do not choose a sick-room in which the window area is small. It may often be necessary to exclude much of the daylight, but this is easily accomplished, while it should still be possible, if desired, to have the sick-room as well lit as any living room on even the dullest day. When the patient's condition makes it permissible to have plenty of light in the sick-room it is wise to let in the sunshine, for there is no greater purifier of foul air than direct sunlight. It is curious that almost always a patient lies facing the light. I quite look upon it as a bad symptom in any patient when he habitually lies with his face turned from the window. Keep the sick-room windows always clean so that the light rays may not be cut off.

Floor covering. Carpets are distinctly undesirable in many cases of illness, but where there is no very

special reason for banishing them, they certainly do help in avoiding noise. They ought never to cover the whole floor, for, if a carpet is laid down in a square, it is much more easily lifted, and consequently its cleansing is likely to be more frequent. Avoid long-haired or fluffy rugs, because they will only act as traps for dust and germs. Rounded corners add greatly to the possibility of cleanliness in a sick-room, but those are not yet frequently found in the ordinary apartment.

Walls. The wall-covering of a sick-room should be one not likely to absorb moisture or to collect dust; thick flock papers are the worst for collecting germs and impurity. The varnished papers now sold give a better surface, as they can be frequently rubbed with a damp cloth. Distemper colouring is quite good, although not often found in a sick-room. It is imperative, after infectious disease, that the wall paper should be renewed, but even after any illness of long duration it is well to have this done. Much unhealthy and poisonous matter, produced by disease, will have been absorbed by the paper. Added to the products of disease there will be the ordinary atmospheric impurities, and throughout the course of an illness lasting over several months it will rarely, if ever, have been possible to get the room flushed with fresh air for any lengthened period.

Fortunately the "noisy" papers so much in vogue some years ago are now rarely seen. Nowadays one finds two shades, much alike in tone, predominating on the sick-room walls, where once there might have been seen huge flowers—atrocities in colour and form—arranged to tempt the patient to irresistible and wearying calculation of the pattern on the wall. The wall covering should be light in colour, as then lighting will be more easy. Pale green or grey is the best. With such colouring the appearance of the room will probably be restful,

because the colouring of the walls will not readily clash with furniture or hangings, dust will be more readily visible, also, light will be better. As a rule the papering of a bedroom receives far too little consideration. Householders appear to forget the possibility of its being transformed into a sick-room, in which months or, it may even be, years of an invalid's life may have to be spent. Choose restful, quiet shades, likely to harmonise with snowy bed-linen and flowers of many tints. This will help in giving to your sick-room an air of unobtrusive refinement, not without its effect upon the invalid.

Furniture. Avoid, in your sick-room, all heavy hangings and draperies. Over a mantelpiece or round a bed those are particularly objectionable. In the former case they collect smoke and dust readily, while round the bed they only prevent the removal of air already respired by the patient. Hangings and curtains of any kind are of course quite inadmissible where there is infectious disease, or in a room where an operation is to be performed. The furniture of a sick-room should be light in form and colour, and not of a kind which has angles and carving for the retention of dust. Try to make the sick-room look as cheerful as possible, and always as unlike a bedroom as you can. Dressing-table and washstand will probably, during part of the illness at least, be unnecessary, and one or both can be replaced by tables for flowers, and perhaps a few of the patient's favourite books and photographs. Keep one table entirely free for medicines, feeding-cups, thermometers, etc. Don't bring basket chairs into your sick-room, because, no matter what may be the condition of your patient, they are at all times objectionable and noisy. Don't have innumerable ornaments: they are only very much in the way, and a real irritation to the patient when dusting time comes round. Pictures are much to be preferred, but I

generally find that those collected on the walls of the average sick-room are just what have been judged too poor for the living-room. In long illnesses, at least, it is quite worth while collecting from other parts of the house a few good pictures to help in providing the patient with some little additional pleasure and interest.

Flowers. Have as many flowers as possible, and always take trouble about their arrangement. Those bright in colour are to be preferred for a sick-room; but never allow any with a scent or strong odour to be brought into the room, because often a perfume very pleasing when one is in health becomes nauseous and heavy to an invalid. Mignonette, for instance, is frequently found most objectionable. Plants add carbonic acid gas to the atmosphere, and at night they must all be removed from the sick-room. This gives little trouble, as, even when there are many in a room the different vases can be collected upon a tray and carried out to corridor or landing. In the morning they can be inspected, rearranged if necessary, and carried into the sick-room for the day when the morning dusting is over. Never allow flowers to remain in a sick-room once they have begun to decay.

The arrangement of a sick-room is always a matter which will repay any trouble. So very different life will look to the invalid in a bright, clean room, without unnecessary furnishing, and yet having in it all that is likely to give comfort and pleasure to him.

Where a dressing room happens to adjoin the sick-room this is found a great convenience.

Quiet in the sick-room is a matter of primary importance. Unnecessary noise there amounts almost to cruelty at times. Avoid clumsy movement, it is so irksome to one who is ill. Rustling dresses and noisy shoes should never be tolerated, although creeping about on tiptoe with a stealthy movement will be

found as irritating to the patient as any of these. Without being noisy, be natural and decisive in moving about.

Take precautions that noises from other parts of the house will, if it is possible, not be heard in the sick-room. Generally with a little care and effort on the part of the members of the household there is little difficulty in preventing this. The matter is well worthy of attention, because, without quiet, there can never be rest in the sick-room. Far too often we are entirely content to give physical rest, and altogether neglect it where the nervous system is concerned, which controls and directs all the functions of the body whether in sickness or in health. People in health can so seldom be brought to understand the weariness to feebly strung nerves, which is so often caused, with the kindest intention, by those bent upon cheering the invalid and "keeping him interested" with a continual coming and going in the sick-room, or by more or less incessant conversation. All this may, as they say, "shorten the day"; but any effort, either in conversation, thought, or action beyond what the patient is able for, brings in its train languor and weakness from lack of real rest.

Whispering in the sick-room, or talking outside its door is quite unforgiveable when the patient is awake. This is sure to cause strained expectation, and, it may be, even fear. Very often we find a patient's hearing almost unnaturally acute, and, in many ailments at least, it is not by any means to be taken for granted that because the body is enfeebled the mind must also be.

Never, as a rule, if you can avoid it, wake a patient, whether with intention or by accident. If a patient is roused from his first sleep he is far less likely to sleep again than if he had been asleep for several hours. A good nurse ought to be able to change hot bottles, and often even give nourishment, without wak-

ing her patient. During the night let a stick take the place of the poker, and have a large glove or a piece of flannel to lift the coal with when it becomes necessary to mend the fire.

Very often people have real difficulty in knowing whether visitors should be allowed to see the patient, because they are unwilling to disappoint the patient, or risk annoyance to his friends. There need be no worry in connection with this. Ask the doctor what he considers best, and keep to his wishes in the matter. No one need be annoyed when he is told that the doctor allows no visitors, or, it may be, that he only permits one for a few minutes each day. So far as the patient is concerned, it is rarely necessary to mention that a visitor is in the house at all. Quite frequently excitement and irritation are caused in connection with the admission of visitors, which might be avoided with a little ordinary tact. Visitors always do mean more or less exertion and excitement to the invalid, no matter although at the time they seem to bring brightness into long, monotonous days. Very likely, while his friend is with him, your patient seems unusually happy and bright, but a little observation, afterwards, far too often forces us to the conclusion that he has been over excited or tired. Unless in exceptional circumstances, when there is any doubt as to whether the patient is able for the strain of conversation, it is safe to ask his friends to postpone their visit until strength has increased. Of course once a patient is able to talk and listen to conversation, visitors to the sick-room are, in moderation, quite desirable; yet it seems to me that there is nothing so apt to be wearying as that small talk which one hears so often in a sick-room. People, in order to appear kind, keep up a continuous flow of questioning, and the patient, conscious of this kind intention, concentrates his attention to keep up conversation when very often quiet is all that he desires. If,

while a visitor is with your patient, you find the latter flushed and talking more than he usually does, you may be pretty sure that the sooner his friend receives a tactful hint that his visit had better be brought to an end the better—a hint perhaps all the more difficult to be appreciated just because from the excitement visible it will appear that the patient is deriving real pleasure from his presence. When a visitor is coming into the sick-room let him be brought in the moment he is announced. I have often seen a patient kept in a state of strain and expectancy while the visitor remains talking downstairs. On the other hand, don't suddenly usher a visitor into a sick-room. See that his chair is placed in such a position that it will not entail any unnatural or uncomfortable attitude for the invalid while talking to him.

Never, if you can avoid it, give your patient the weariness of repeating a request. Any knowledge, too, on his part that the nurse has a way of forgetting small wishes, gives rise to anxiety and irritation, which, with a little care, might be avoided.

While allowing your patient what work and recreation may be permissible, avoid most carefully any tendency to fatigue, and try to vary his occupations and amusements; because, if the brain is concentrated too long upon one subject, excitement (which is really nerve strain) is sure to result, followed by a certain amount of nerve paralysis, or fatigue, as we call it.

Reading aloud to a patient is often not very advisable, as it requires a greater effort of concentration on the part of the invalid than reading himself would mean. When you do read aloud, don't try to hurry by way of keeping up the listener's interest. Let the reading be done quietly, and pronounce every word slowly and distinctly. Hurrying only causes weariness to the patient from

the effort to follow and grasp what is being said. Be quite sure that your patient can hear you without difficulty, but never shout.

Cleanliness is, of course, of paramount importance in the sick-room, no matter what the ailment may be. There can be nothing more dismal, nothing more hopelessly dreary, than an untidy sick-room, with dust over everything and clothes tossed anywhere.

Far too little attention, as a rule, is paid to the possibility of dust collecting in the sick-room in places where it is unlikely to be visible, as in corners, about curtains or false cornices—positions from which it is liable at any time to be wafted into the atmosphere. People look upon dust as unsightly, perhaps, but harmless, not realising that besides inorganic matter we find in it dead scales of skin, pus cells from sores, or, it may be, the germ of the tubercle which has gained entrance through the window or on the feet of those entering from the street. Its presence may be due to the disease from which the patient himself suffers. Many kinds of bacteria may be present in dust—some harmless, others potent in producing disease—so that if we are to keep the atmosphere of the sick-room wholesome and pure, dust must not be allowed to collect. To prevent it from rising into the atmosphere when the sick-room is having its daily cleansing, the carpet should be brushed with an abundance of tea-leaves, and the brush itself should be slightly damp. It is a good thing too to rub the carpet occasionally with a cloth wrung from ammonia and water, or from water with a little lysol in it. The duster, also, ought to be rather damp, and everything in the room should be gone over each day, quietly in order that no disturbance may be caused to the patient. Without showing a perpetual, wearying, fussy desire for cleanliness, it is perfectly easy, in most cases, to keep the sick-room always cheerful, wholesome, and bright.

The Bed. A low, narrow, iron bed is undoubtedly the best for a patient, and although those are occasionally found in sick-rooms, more often there is a broad, heavy bed, impossible to move and difficult to arrange. However, such a bed does have one advantage—the patient can occasionally be lifted to a cool place, which will add to his comfort. The spring mattresses and chain beds used now are comfortable, and likely to be cooler than the old-fashioned spring mattresses. Hair mattresses are of course best above those, and flock mattresses come next. A feather bed in a sick-room is impossible—everlastingly getting into hollows and often uncomfortably hot. When circumstances permit, always have the best mattress available on your patient's bed, as much can be done by having the bed comfortable in preventing restlessness. Turn the mattress always from above downwards, for, when turned from side to side, an uncomfortable hollow is apt to form in the middle of it.

The blanket over the mattress need only be single, because, if put on double, it wears in two places.

See that the under-sheet chosen is large enough to be firmly tucked under the mattress all round, as this will greatly help in preventing its being rubbed into wrinkles—a great source of discomfort to the patient, and a fruitful cause of bed-sores.

When there is occasion to keep a patient between blankets, as in diseases of the lungs or kidneys, cases of rheumatism or collapse, cases in which the patient is very old, and several others, a blanket is next placed above the under-sheet, but usually this is not required. Where the patient is very helpless a Mackintosh must always be placed across the bed, but as it tends to help in producing bed-sores, or at least tenderness in the skin, it should not be used unless it is a necessity. While a patient is kept altogether in bed, always place a draw-sheet across the bed. The chief advantage of having this is that it will lessen

exertion for the patient. It is so much more easy to change the narrow draw-sheet than to put a whole fresh under-sheet below the patient; added to this, by pulling the draw-sheet through at times you give the patient a fresh cool place to lie upon with very little trouble. See that the under bedclothes are firmly and neatly tucked in all round before putting on those which are to go above the patient, or else the bed will always seem untidy.

Generally the patient prefers to have two pillows, a soft one immediately under the head and a harder one below. Always keep an extra pillow in the sick-room, as, when that under the head grows hot and uncomfortable, it helps matters very little simply to shake and turn it round. An entirely fresh pillow should be put in.

Where a patient is being kept between blankets let that immediately above him be laid loosely over and around the body, and, if possible, let this be a soft new one. Above this comes the upper-sheet, and see that this properly overlaps the blankets at the top. It is unpleasant for a patient to feel those brushing the face. Don't make weight over the patient's chest by folding back extra length in the blankets at the top, which could be folded back over the feet, with the exception of the top fold, which is tucked in all round. Don't choose a bed-spread so large that it touches the floor, nor one so thick as to be heavy. If only a heavy bed-spread is available, substitute a sheet for it, and at night remove even this. In the day-time one rather wants a nice white covering over the bed, but, during the night, the bed will feel much more comfortable without a close cotton or linen cover.

Hot jars are nearly always more or less of a necessity in the sick-room. Put one at least into the bed when preparing it for a patient, even although he may not wish to keep it afterwards. Hot rubber bags

are usually best, because they are more comfortable, being soft, but unfortunately they require more frequent refilling than those of tin or earthenware. See always that the stopper is put in properly so that there may be no leakage; and keep hot jars or bags always encased in flannel bags. Here I should like to warn you against risks of burning a patient with hot jars. In cases such as paralysis, collapse, and others in which sensation may be partly lost, sometimes injury is caused by placing the jar in such close contact as to burn the patient. Always see that between the jar (even when it does have a flannel cover) and the patient's skin there is a fold either of blanket or of sheet. In other words place the hot jar either below the under-sheet or above the top one.

There are often complaints that hot rubber bags are not durable; but if they are not filled with water absolutely boiling, and if when they are to be laid aside a little air is blown into them before the stopper is put in, then they will last well as a rule.

CHAPTER IV.

VENTILATION AND WARMING.

PURE air is as necessary in the sick-room as good food, and the need for the continual removal of foul air, and the admission of pure air cannot be over-estimated. Unfortunately, the atmosphere of the sick-room can be full of impurity without there being any visible sign that such is the case.

The composition of the atmosphere varies in different circumstances. The average composition, however, of 1000 vols. of air is much as follows: 210 parts oxygen, 790 parts nitrogen, 4 parts carbonic acid gas, with smaller quantities of other ingredients, such as ozone, watery vapour, organic matter, and particles of mineral matter. Oxygen is, of course, the important element, because it is absolutely necessary both to animal and to plant life. Ozone is a powerful form of oxygen, and, as a rule, it is found by the sea and in the country, but not in the atmosphere of largely inhabited places.

Nitrogen is simply present to dilute the oxygen. The latter would be far too powerful did it exist alone in the atmosphere. The quantity of carbonic acid gas varies. In the air of the dwellings sometimes three times the amount is found that we have in pure air. Much of this will be due to the respiration of the occupants of the room, and a certain amount is caused by the combustion of coal and gas.

To ascertain whether there is an excess of carbonic acid in your sick-room, get a bottle of $10\frac{1}{2}$ oz. capacity and one of $8\frac{1}{2}$ oz. or less. Fill them with water and put in the corks, then take them so filled into the sick-room. Pour out the water, and quickly add to each bottle a tablespoonful of lime water, put in the corks and shake the bottles. If you find that the lime water in the larger bottle becomes cloudy, you have reached the limit of allowable impurity in the atmosphere. If the contents of the smaller bottle become cloudy, then there is more carbonic acid gas in the atmosphere than ought to remain there. Usually the amount of carbonic acid gas is made the test for other impurities as well. If there is an excess of that there will also be too much organic matter.

People are too often led to look upon carbonic acid as the one impurity of importance to be found in an ill-ventilated room. Organic matter and watery vapour may also have a very injurious effect on the health of individuals who habitually breathe an atmosphere in which they are present to any extent. The organic matter in the air may be due to various sources. Partly it will consist of broken-down particles from the lungs of those who have been breathing the air; added to this, there may be in the atmosphere scales shed from the epidermis, pus cells from wounds, germs of tubercle and of other disease. The presence of organic matter in the atmosphere may arise at times from causes too numerous to mention here, but one very fruitful source of its presence in the sick-room is the common habit of keeping the patient's soiled linen there. That ought to be kept outside the room, and not in its cupboards nor in a basket kept there for its collection.

If a sick-room is not kept well ventilated the organic matter in it will readily be absorbed by

carpet, furniture, hangings, etc., and because of the moisture and heat in the room it putrefies readily, and so gases are added to the atmosphere, causing a more or less unpleasant, or "stuffy," odour in the sick-room.

The best test in regard to the amount of organic matter in the sick-room is to be got by coming into it after being in the open air for at least ten minutes. Then the sense of smell will be able to detect at once the "stuffiness" which gives the note of warning for opening the windows. This test is, however, not to be relied upon until one has been for *at least ten minutes* in the fresh air. Unless you have been for that length of time in the open air, just before entering the room, you cannot with certainty say that it is not "stuffy."

To test the amount of moisture in the atmosphere, a wet bulb thermometer may be kept in the sick-room along with the ordinary dry bulb thermometer. To make this you cover the bulb of an ordinary thermometer with muslin, and attach to this a strip of muslin dipping into a small vessel containing water. In this way the muslin covering the bulb is kept moist, and this moisture evaporating keeps the mercury in the wet bulb thermometer cooler than in the dry one, so that the reading in the case of the former will be lower than that of the latter. The difference between them will depend upon the amount of moisture in the air of the room. The drier the atmosphere the greater will be the difference between the two readings, while, if the atmosphere be too moist, there will be little between them. There ought, at least, to be four degrees of difference between the two thermometers, and at no time more than nine. An atmosphere with an excess of moisture is of course injurious; but one too dry is equally harmful, causing the air passages to become dry and irritated, and so more susceptible to changes of temperature.

An adult breathes from sixteen to eighteen times in a minute, sometimes more frequently, and during each respiration over thirty cubic inches of air pass through the lungs. This loses, in its passage, four to five per cent. of oxygen, and takes up, in place of this, four per cent. of carbonic acid gas. The oxygen is taken up by the blood to be carried to all the tissues of the body, while the carbonic acid gas—a waste product caused by work and consequent waste in the body—is brought by the blood to the lungs to be eliminated by them. As has already been shown, the air passing through the lungs gains in carbonic acid gas, in organic matter, in moisture, and its temperature is raised. Added to this, one must remember, too, in connection with atmospheric impurity in the sick-room, that a greater amount of waste and unwholesome matter may be given off, both from lungs and skin, in sickness than there is in health, and so there arises even a greater need for ventilation in the sick-room than is the case where all occupants of a room are healthy and well. Bad air will affect the invalid's health in different ways. Its impurity may prevent the organs of the body, already weakened by disease, from carrying out properly their ordinary duties. Very often I find that if the sick-room windows have been closed for a length of time the patient appears languid, sleepy, dull, and depressed, and then the effect of opening the windows and filling the sick-room with good, pure, wholesome, invigorating air is that, almost immediately, he becomes bright, alert, and cheerful. The former condition is due to the effect of impure air on the brain, because there is not enough oxygen present in the blood to stimulate this organ, but, on the contrary, there is present carbonic acid gas, which acts as a poison. Although the effect of an excess of carbonic acid gas may not be so immediately fatal as to bring about death it will certainly lower the health of

the body, by supplying unwholesome matter to the tissues, in place of the life-giving oxygen. If enough fresh air is allowed to circulate through the sick-room, the carbonic acid gas will not be allowed to collect beyond limits consistent with hygienic conditions, the organic matter will be got rid of before it can reach a state of putrefaction, or, by the action of a plentiful supply of oxygen, it will be purified and rendered harmless, while the moisture, given off from lungs and skin, will not collect to an extent likely to prove injurious.

As everyone knows, ventilation must be accomplished without allowing draughts to reach the patient's bed. Draught-screens are at times necessary to avoid this, and where there is not one available, sheets, pinned over an ordinary clothes-horse, serve the purpose equally well.

Generally speaking, it is best to keep the sick-room windows open from above, but in sunny weather it is usually possible to open them below as well, while there are cases which benefit even in cold weather from having the windows thrown open to their fullest extent. Of course, one must take the nature of the disease, and the patient's condition, into consideration, but at least always keep the sick-room windows open at the top. We find that doctors, more and more as knowledge of disease and its cure advances, rely upon the effects of breathing pure, fresh air in their treatment of disease.

A very clever little contrivance has been invented to put under a window opening to the street. A light wooden frame, made to fit inside the open casement, is covered with muslin or gauze, and the lower sash, when open, rests upon this. The height of the frame, of course, depends upon how far up one wishes to place the lower sash. By this appliance the air from road or street is, to a certain extent, filtered, and, although the volume entering the room will not be so

large as when the window is simply opened, the occupants will be less likely to complain of draughts.

I find that many people have an idea that, if they flush the room with fresh air morning and night for ten minutes, by throwing all the windows open, while very often the patient is warned to put his head under the blankets for the time, they have done all that is necessary so far as ventilation is concerned. This is distinctly not sufficient, because unless one provides for the *continual* admission of pure air into the room, and the removal of that which is impure, the atmosphere of the sick-room can certainly not be health-giving to the invalid. See, too, that the air enters direct from the outside, and not from some partially ventilated corridor or landing. Teach your patient his need for fresh air. Tell him that there is no influence so relied upon for the cure and prevention of disease, as is that of fresh air and sunlight. By attention to the condition of the atmosphere in the sick-room from day to day, the tissues of the patient will be strengthened in their power to resist the inroads of disease.

Warming. In arranging that the warming of the sick-room shall assist in its ventilation, one can, as a rule, have nothing better than the ordinary fireplace. Oxygen is required for the combustion of the fuel, and so the fire keeps drawing towards it a continual current of air in order to get a sufficient supply of this gas. It draws air into the room through every possible aperture, and because of this, one must observe that the patient's chair is not placed directly in an air current so formed. Always see that he is provided with a footstool when sitting by the fire.

A fire assists ventilation in another way, and to understand this one must grasp the fact of a difference in weight between air which is cold, and that which has been heated. Hot air is always the lighter, and hence it has the tendency continually to ascend, while

cooler and heavier air above it will fall. Herein lies the reason why, preferably, windows should remain open from above. The cooler air entering being heavier than the air in the room, which it can easily be conceived will be warmed more or less, falls and so diffuses itself about the apartment, while the warmer and impure air already there, rises to the level of the open window and escapes. In this way, by avoiding an arrangement by which air will enter on a line with the occupants of the room, draughts may sometimes be prevented, while a sufficient supply of pure air is supplied. In regard to this difference of weight between hot and cold air, a fire assists ventilation by keeping the bricks of the chimney hot, so that air ascending maintains its temperature. Consequently, being hotter, and so lighter, than the air outside, it tends to rise above that, and a continual current upwards is formed. Thus in two different ways we find a fire encouraging ventilation—first by drawing air towards it through the room, and then by causing this continuous current of hot impure air up the chimney. It must, however, be remembered that the fire will only assist ventilation to a height equal to that of the mantelpiece, or not so high, and so it can by no means take the place of open windows. We find that there is no means of warming the sick-room so hygienic as the ordinary fireplace, and consequently, except at times when the state of the weather would render it too oppressive, it is always well to keep a fire in the grate, no matter how small it may be.

Stoves, unless planned on such strictly hygienic lines that they can add no impurities to the atmosphere, are distinctly undesirable. If they are made of such a pattern as to become red hot, then there is every probability that the very poisonous gas, carbon monoxide, will be added to the atmosphere. Added to this, and to the fact that they may not be provided

with a flue to carry away the products of combustion, they tend to dry the air overmuch.

Every sick-room should be provided with a thermometer, and remember that it is there to be examined at intervals in order that, as far as possible, you may avoid variations in your sick-room temperature. This ought, as a rule, to remain about 56° F., but in some cases, particularly those in which the patient is collapsed or old, or perhaps in the case of an infant, it may be well to keep the temperature as high as 60° . Don't allow your sick-room temperature to fall at one time to 50° , and at another to rise to 60° . In order to keep it as much as possible at the same level, examine the thermometer frequently and keep the fire replenished when necessary. One must remember this towards the early hours of morning, because it is very apt to grow chilly and cold at 3 or 4 a.m. Very often one finds the thermometer placed like an ornament on the mantelpiece. In such a position you cannot ascertain from it what is the average temperature of the sick-room, because in the neighbourhood of the fire it may be 56° F., while around the patient's bed it may be considerably lower. Find a central position for your thermometer, and the best one you can have is got by tying it to the top of the patient's bed.

CHAPTER V.

PERSONAL CARE OF THE PATIENT.

MUCH can be done in adding to a patient's comfort by keeping the linen on the bed fresh, and always smooth and comfortable. Avoid airing the linen in the sick-room if possible, and see that everything is in readiness before commencing to make the bed. It is so unnecessary, and often so annoying, to an invalid, to keep on prolonging the daily toilet by constantly having to run for things which might quite easily have been collected beforehand.

If the patient can get up to have his bed made so much the better. See that the sick-room is comfortably warm first, and that the easy-chair placed for him by the fire is not in a draught. Put a blanket over it to wrap him in, give him warm slippers and a dressing-gown or coat, and have his hot jar ready to use as a footstool. A pillow placed lengthwise from the chair to the floor, against which the legs can rest, gives greater comfort. Then when the patient is quite comfortably settled you can make the bed. Remove the bedclothes one by one, not just in a heap, in order that they may be aired to a certain extent. Indeed, when circumstances permit, it is well to keep two sets of bedclothes in use, then those can be used alternately, one set being aired while the other is on the bed. When possible, too, it is well to hang them,

while airing, in the open air, so letting them have the purifying effect of fresh air and sunlight. This attention to the blankets etc. on the patient's bed is much more necessary than most people realise, although a little consideration at once shows the need for it.

In health an adult perspires to the amount of about a pint or more in twenty-four hours; in disease the amount may be less or it may be greater. This water, with all its waste matter in solution, along with perhaps many unwholesome products of disease, must of necessity pass into the patient's bedclothes, where, encouraged by the heat from his body, it putrefies, often giving rise to an unpleasant odour more or less marked.

If the invalid's bed is to be kept healthy, fresh, and comfortable, the blankets must be frequently aired and the linen regularly changed. Of course it may not always be advisable to give the patient the exertion of having the linen under him changed twice daily or even once in a day, but usually one can easily arrange to have the bedclothes above him changed night and morning. If he cannot get up to have his bed made, it may happen that there are two little single beds in the sick-room, so that the one can be drawn to the foot of the other, and then he is lifted over into a fresh bed night and morning. Lift in the under-sheet, but see that it is strong and that you have bearers enough to move the patient gently. If the patient is heavy use the under-blanket as well as the sheet for lifting. The upper bedclothes are laid loosely round the body, and the two sides of the under-sheet are rolled inwards to within five or six inches of the patient on either side. The bearers down either side then grasp these rolled margins, while someone, by placing the hands under the pillow, supports the head. When all are ready lift together gently across the foot of the one bed into the other.

If this is done properly no exertion is necessary on the part of the patient, and the change is accomplished most comfortably.

Usually it happens that we must change the linen while the patient remains in bed. If he chance to be small, or fairly strong, one can easily make the bed single-handed, but in cases of acute illness it is really important that two people should do so, as this will entail less exertion for the invalid. The bed should be made quickly and quietly, and, especially if the patient is very ill, let there be no needless movement, because the heart in many cases will be working under strain and difficulty; and sometimes the way in which you change the under-sheet, when that becomes necessary, may mean the difference between life and death for your patient. Bed-making always means some exertion for the invalid, but the amount lies greatly in the hands of those who are nursing; one person will leave a patient overcome with exhaustion when it is over, while perhaps if it is done by another he is only conscious of the great sense of comfort given by fresh, cool sheets gently and cleverly put in the place of those which have been in use throughout the long restless night. Having collected everything necessary, roll up the fresh under-sheet along its length to half its width (that it may be in readiness when required).

To change the linen below the patient untuck the soiled linen all round, and in the under-sheet turn your patient round on one side. While in this position take the opportunity to do what may be necessary to prevent parts of the back liable to pressure from becoming tender and sore, and see that the nightdress is free from wrinkles. Roll the mackintosh and draw-sheet up close to the patient. Next under the upper bedclothes roll up the under-sheet also close alongside the patient's back, and place the rolled part of the fresh one in a line with this. If

a second mackintosh is available, then a clean draw-sheet may be rolled up along with this, the rolled part being placed as before close to the patient. Usually it happens that there is only one mackintosh, and as, night and morning, it is necessary to take this from the bed to free it from wrinkles, it is simply removed with the other bedclothes under the patient to be put in again later. When the rolled margins of the various sheets are in position alongside the patient (Fig. 2), turn him gently and quietly from one side to the



FIG. 2.—Upper bedclothes laid back to show arrangement of under bedclothes, put in from the side of the bed.

other. Then the nurse on the opposite side of the bed quickly removes the soiled sheets and unrolls the fresh one over the mattress, tucking it under that smoothly and firmly all round. Next remove all wrinkles from the mackintosh, and place that and the

draw-sheet under the patient by turning him over a rolled part of it; or should it be more easy, one nurse can raise and support the back while another passes mackintosh and draw-sheet together under the body. See that both are perfectly smooth, and on each side of the bed tuck them under the mattress. If it is advisable to move the patient as little as possible, then with three or four safety pins on either side pin the draw-sheet to the mattress, and so avoid wrinkles and folds, which in such circumstances it might be difficult to remove. If the case be one of fracture do not tuck the draw-sheet under the mattress, but fold it up on either side and safety pin it to that. By this arrangement you lessen, to some extent, the risk of causing movement at the broken ends of bone when you make the patient's bed.

It is not enough to arrange those lower bedclothes night and morning and assume that they remain so. One should occasionally take trouble to ascertain whether the under-sheet is still free from wrinkles and crumbs, and to pull the draw-sheet through under the patient to a cooler part.

At times one may have a patient who cannot be turned to one side or the other, and then the fresh under-sheet is put in from the top of the bed. To do this, roll it along its width to about half a yard from the top and untuck the soiled sheet all round. One nurse then raises pillow and head, while another rolls down the soiled sheet under those and tucks in the fresh one at the top of the bed. Then the head is laid down once more while the shoulders and chest are raised in order that the soiled sheet may be still farther pushed down and the fresh one unrolled. Next, the lower part of the trunk is raised to pass the sheets under that, so that by degrees the soiled under-sheet is brought to the foot of the bed, while the fresh one is unrolled under the length of the patient's body (Fig. 3).

At times it is only necessary to change the patient's draw-sheet. To do this untuck this soiled sheet and, at one side of it, lay back a fold of about a quarter of a yard. Double back on itself the end of the fresh sheet in the same way, and safety pin the two folded ends together. On the same side of the bed tuck in the free end of the fresh draw-sheet under the mattress, and place the soiled one and that part of the fresh one which is to go under the patient close alongside the body. The nurse on the opposite side of the bed



FIG. 3.—Showing method of putting in fresh sheet from top of the bed.

must grasp the upper and lower margins of the draw-sheet close to the patient's body, and, while the other raises the body, she quickly pulls both sheets through. The safety pins are then removed and the end of the fresh draw-sheet is tucked under the mattress, the soiled one being thus entirely removed from the bed. Be careful, whilst pulling the draw-sheet, to keep it straight between the two hands, or it will be drawn through in wrinkles, which will have to be got rid of, and so extra exertion will be caused to the patient.

In making a bed it is never necessary to uncover the patient, and, to arrange the upper bedclothes, proceed as follows. Except when the patient is suffering from shock or is, from some reason, more than usually susceptible to chill remove everything from above him, with the exception of the blanket and sheet next to the body. Then pull the sheet from under the blanket and spread it, or better still, one freshly aired, over this. In its turn pull the blanket down under the sheet and spread it over the bed above that. Next, the remainder of the bedclothes are put on quietly; to throw them about clumsily causes a feeling of draught and annoys the invalid.

Should your patient, at any time, seem more than usually restless, try the effect of straightening the under-sheet, pull the draw-sheet through to a cooler part, arrange the upper bed-clothes, and remove for a time the top cotton or linen covering. Then, very likely, unless the restlessness is entirely due to his ailment, you will find that he becomes quieter. Far too frequently restlessness is regarded as inevitable, or incident to the disease, when it is really only due to an uncomfortable bed. A little extra care and attention in regard to this will add immeasurably to the patient's comfort; but at the same time one must avoid that appearance of continual fussiness in keeping the bed neat, which becomes so irritating to the invalid. Often you find that he objects to having the bed-clothes above him drawn smoothly over the bed. If this is so there is no need to sacrifice what he considers his comfort to neatness, while you can still have the bed look fairly tidy by keeping the counterpane straight over the other bed-clothes.

Much might be said about the arrangement of a patient's pillows, but no very definite rules can be given regarding these. The number required for propping up the patient will of course depend upon

circumstances, fewer being wanted for a child than for an adult, and, with the exception of that just under the head, hard pillows give the most comfortable support. They are usually laid one above another behind the patient; but with this arrangement he is rather apt to slip down towards one side or the other. To avoid this a fifth pillow may be put upright under the others at the side towards which the patient is apt to lean over. A more satisfactory way in which to arrange them is to lay the bolster along the top of the bed, and then place two smaller pillows at an acute angle (like the letter V upside down) against the top of the bed. Lift the patient back into the hollow between those and then place a fourth pillow comfortably behind the head. Always take trouble to arrange your patient's pillows quite comfortably. Attention to this will often mean the difference between a good night and one spent in restlessness.

When the state of the patient permits, it is often best to do away with pillows as much as possible, because they soon become very hot, and require to be frequently re-arranged, if the patient is to remain in a comfortable position. Ordinary bed-rests are sometimes available, but, when this is not so, then you must improvise one. A firm, upright support can be given by placing a chair on its side with its back towards the patient. Place a pillow between it and the patient's back, while either one or two can be laid above the chair behind the patient's head.

Sometimes you are told to raise the arm or leg on a pillow. Place the ailing limb comfortably in position, and tie a bandage loosely round both the pillow and the limb to prevent the former from slipping out of position while the patient sleeps.

If the patient is in the habit of reading while lying on the side, a pillow, placed in front of him on which

to rest the elbow, often makes it less wearying to hold up the book.

In those cases in which a patient suffers from some abdominal ailment it is usually advisable to place a pillow under the knees.

Very often we hear a patient complain of pain in the back—"pain in the small of the back" as he puts it—then a small air cushion can be put under the back, just at the waist, or if that cannot be easily procured, his hot bag filled with tepid water might be used instead. Often a bath towel rolled up to form a cushion, and placed under the back, gives the needed support. Quite the best way in which to give relief, however, is to get down by the patient's bed for half an hour and support the aching part with the palms of the hands.

Helpless patients require to be lifted frequently, it may be, to change the position, or for some other reason. If the patient be so small or light that the nurse can lift single-handed, then the easiest way in which to do so is to pass the arms under his shoulders and knees. Should the patient be heavy, however, it is best that two people should lift together, joining hands under the shoulders and hips. To lift a patient forward to arrange pillows, each nurse places a hand under the axilla, then a third hand supports the head, while a fourth is still free to alter the pillows. Always keep an extra small pillow in the sick-room, so that when the one already under the head becomes hot and uncomfortable, you can replace it with a cool one. It does very little good simply to shake the pillow below the head, and turn it.

Care of teeth and skin. The skin is one of the most active organs in the body in getting rid of impurities caused by work and waste, and, it may be, by disease. Therefore, in order that it may be more able thoroughly to perform its functions, it is important, when the condition of the patient is not too serious, that the

whole surface of the body should be sponged each day. This will not only add very greatly to the patient's comfort, but will probably to a certain extent hasten recovery by keeping a very important organ active in performing its duties. If the millions of tiny tubes on its surface are allowed to become blocked up by their own secretions, then, not only must more poisonous and unhealthy matter be retained in the body, but in consequence a greater amount of work will be thrown upon lungs and kidneys in eliminating impurities. Added to all this, if the skin is not attended to, the clothing of the patient and that of the bed will absorb much of the impurity from the body's surface, and, encouraged by the heat from the patient's own body, this will putrefy and give rise to a disagreeable odour.

I find it wiser as a rule to do the daily sponging at night. It is comforting, and often, after it, the patient readily falls asleep. Should you fear that sponging the whole surface of the body at one time will entail for your patient greater exertion than he is able for, then the upper part can be done when the morning toilet is performed, and the lower may be sponged in the evening.

Before commencing see that your sick-room is warm, and get everything ready first. If a large mackintosh sheet is available to protect the bed so much the better. Generally this is not so, and then two thick sheets of brown paper tacked together can be used in place of the mackintosh. Place this with two blankets in front of the fire to warm, along with a freshly aired nightdress, and the towels which are to be used. Put a hot jar at the patient's feet, and get ready two basins with water—one with flannel and soap in it and the other with a sponge. Have also a can of hot water at hand to keep up the temperature of the water in the basins, because, as a rule, the patient objects to water grown nearly cold. If one

does not pay attention to all those little matters the daily sponging becomes a source of real annoyance to the invalid, instead of a pleasure. See that the evening or morning temperature, as the case may be, is taken before commencing, and, when everything is ready, roll up mackintosh and blanket lengthwise to half their width. Turn the patient on his side, and, under the upper bedclothes, push this rolled part close alongside his back, turn him over it, and unroll blanket and mackintosh on the other side of the bed. Be very careful to keep the blanket always outermost, so that the cold mackintosh may not come in contact with the patient's skin. Next lay the second blanket, previously warmed by the fire, above the patient's upper bedclothes, pull those down under it and spread them above. Having in this way placed the patient between bathing blankets, remove the gown and proceed with the sponging, doing the body in sections. Thus face and hands may be done first, next the chest and abdomen, then the arms, and after that the patient can be turned on one side to have the back sponged. Do the lower limbs last, and see that each part is thoroughly dried as you go along, because it is most unpleasant to have the skin left moist. Note that while doing all this the patient must never be uncovered. *All the sponging, with the exception only of the face and hands, must be done under blankets.* When it is over pull the damp bathing blanket from under the patient's upper bedclothes, turn him gently on the side, and, under the upper bedclothes, roll up close to the back the mackintosh or thick paper and the blanket which were put in to protect the lower bedclothes. When the patient is again turned round those are easily pulled away at the other side of the bed, to be thoroughly dried for use on another occasion. Put on a nightdress freshly aired, because, just as in the case of the bedclothes, it is well to keep one garment for the night and another for the day. In

cases where there is profuse perspiration the night-dress must be changed more frequently.

When tepid or cold sponging is ordered to reduce the body's temperature I generally find it most convenient to use, instead of the ordinary blankets, two small ones like those on a child's crib. They can without much difficulty be put above and below the upper part of the body while that is sponged, and next above and below the lower limbs while those are done. In this way less exertion and movement is caused, usually a point of the greatest importance. The patient ought of course to brush the teeth morning and night, and as a rule this is quite an easy matter even when he cannot sit up. In that case place a towel under his chin and give him his tooth-brush, previously moistened and dipped into whatever dentifrice he may prefer. Then hold for him a glass of tepid water and the bottom of his soap basin to rinse his mouth with. Never give him very cold water, because at all times that is liable to crack the enamel, but especially is this so in ill-health. See that the tooth-brush is neither too hard nor too soft, and instruct your patient to rub it all round the inner and grinding surfaces as well as over the outside of the teeth. Let the movement, too, be upwards and downwards as well as across. If the patient is himself unable to use a tooth-brush, you must do what you can to cleanse the teeth for him. Have prepared, before you commence, several short lengths of wood much like a pencil in diameter. Tie pieces of lint or cotton wool *securely* round the ends of those, or, if lint is not available, old linen will serve the purpose equally well. Prepare a mouth wash such as carbonate of soda in tepid water, weak Condyl's fluid, or Listerine, and dipping the swab of lint or linen into this, rub it round the teeth and jaws, using a fresh mop prepared as above as each one becomes soiled. If the teeth be very dirty you will cleanse them more effectually by using the index

finger wrapped in lint as described in Chapter II. Directions are also given there for cleansing the tongue in cases where it becomes very foul. Should the lips be cracked and dry, paint them frequently with boroglycerine.

The hair ought to be brushed night and morning, especially in the case of female patients, because, unless attended to, it will soon get into such a condition as will make its brushing one of the greatest trials of the day to your invalid. If regularly and thoroughly brushed and combed, and then neatly plaited down each side, it gives very little real trouble unless in cases where there is great perspiration, and the patient is more than usually restless.

Clothing. No very hard and fast rules can be laid down as to what a patient's clothing should consist of, but, generally speaking, the garment worn next to the body should be of wool—always of this material if there is apt to be profuse perspiration, if the patient is old or collapsed, or should he suffer from some disease of heart, lungs, or kidneys, or from rheumatism. Being a bad conductor of heat wool helps in retaining the body's own temperature, and consequently it is warmer than either cotton or linen. Also it readily absorbs moisture without feeling damp, and so, in cases where the patient perspires a great deal, it is not, if regularly changed, likely to become the cold, clammy source of discomfort that a cotton garment does. The patient's nightdress ought always to be large enough to be changed without difficulty, and, as a rule, the best way in which to put on a fresh one is to put the arms first into the sleeves, drawing these quite up to the shoulders. Next gather the length of the back of the nightdress from the neck to the foot of it, in the hand, and lift this over the patient's head. All that is necessary then, is to pull the nightdress down behind and in front, and put in the buttons. To remove it take out the buttons.

and pull the nightdress up all round. Then take the patient's arms out of the sleeves, and, gathering the length of the front of the nightdress in the hand, lift this above the head. Gently raise head and shoulders, and pull the nightdress from under them. In cases where the patient cannot move much, it is often wisest to cut the nightdress down the front, put it on back to front, and push it under the patient at either side.

Prevention of bed-sores. In regard to these "prevention" is far better than "cure," so that all parts which you fear may become sore or tender should be examined night and morning. Of course, the place where you are most likely to find a bed-sore is the lower part of the back, but other parts also may readily become tender if they are liable to pressure. Very often we find redness on the upper part of the sides of the thighs, on the hips, shoulders, elbows, ankles, or heels, sometimes in bad cases even the toes and knees become tender from the rubbing of the bed-clothes above. Any part which you find is apt to become red should be washed morning and night with ordinary yellow soap and water, and then dried. Methylated spirit rubbed well into the part is the best thing to use for hardening the skin. Observe that there is much virtue in this rubbing, because it will increase the blood supply to the part, and so strengthen the tissues there. Very often people come asking me whether brandy and white of egg is not the best thing to use in the prevention of bed-sores, but, as commonly applied, it is of little use. Well rubbed in it may do some good, but you get small benefit from it when it is simply painted on. Of course the liability of the skin to break down depends largely upon the condition of the patient. People suffering from paralysis, especially those who have for a long period been confined to bed, are, as a rule, the worst for having bed-sores. In cases of fracture,

where the patient is heavy, and in those who are weak or old, or whose vitality is low, one must ever be on the outlook to prevent the occurrence of troublesome sores. Keep the draw-sheet always smooth, change the patient's position frequently, so that pressure and irritation may not always be over the same parts, and keep the skin always clean and dry. By attention to matters of this kind, much may be done in avoiding the risk of the skin's breaking down. It is chiefly because it is always becoming damp that the skin of a paralysed patient so readily gives way, therefore, examine the draw-sheet frequently, and, when necessary, pull it through to a dry part. Wash the skin often, and, to protect it from moisture, keep the back and the back of the thighs well rubbed with lanoline and vaseline, or with a paste made up of one part zinc powder and one part of starch in four parts of vaseline.

To alter the position in cases of paralysis, the patient can be propped first on one side and then on the other by means of a pillow behind the back. In some cases, more particularly surgical, it may not always be wise to turn the patient completely on one side; but very often a pillow can be pushed a little under one side, and then, after an interval, under the other, to avoid having pressure always on the same parts.

Water beds are most useful in cases of great and long continued helplessness, although they have the disadvantage of causing moisture to collect to some extent in the bedclothes which are under the patient, and this rather increases liability to tenderness in the skin. Still, they do aid greatly in avoiding the dangers of pressure, because they give with a patient's every movement, and so they prevent any undue pressure at one particular part. Directions for their use are given in Chapter XVI.

Over prominences such as the heel and elbow, and

those at the ankle joint, a "bird's nest" is sometimes placed. Get a large piece of cotton wool and lay it round your own hand and forearm. Then beginning at the upper margin (near the tips of the fingers), roll it downwards almost to its lower margin, and push what remains unrolled into the ring so formed. The part to be protected is placed in the depression in this little pad. If the patient is very quiet, it may remain in position, or it may require to be kept in place by a bandage. Powder generously dusted over parts apt to become tender is often useful. Generally boracic powder is used, but in some cases this is found to be harsh and irritating to the skin. Tale powder is much better, being very soft and not likely to collect into small crumbs, which are apt to cause discomfort to the patient. Sometimes 10 per cent. of boracic powder in tale is found to be very good. If it is necessary to keep the powder constantly applied to the part, it is scarcely enough simply to dust it on. Make a little square or oblong bag of soft muslin, not too close in the mesh, and run a thread across this at intervals of about half an inch, sewing the two surfaces together to form different partitions lying parallel with each other. With a teaspoon fill each of these with powder, and sew up the remaining side. A pad so made can be laid over the part liable to become tender, or, if necessary, it can be bandaged on.

Care of bed-sores. Sometimes in spite of the most conscientious care a bed-sore will occur in bad cases of paralysis, and where this happens after the skin has for a long time kept strong it is to be regarded as an unfavourable sign of the patient's condition. Of course when the skin breaks down the medical man must be told, no matter how humiliating confession may feel, because he may wish to advise as to its dressing. If left to the nurse's care various dressings may be used. Iethyol ointment, or 5 per

cent. ammoniated mercury in vaseline may be spread on the smooth side of lint or on old linen, but before applying this dressing rub the ointment well into the skin over a large area round the sore. This will to a certain extent hasten recovery by bringing an increased blood supply to the part. Sometimes the lint is conveniently held in position at the foot of the back, where a bandage is of little use, by stretching lengths of adhesive strapping over the dressing; this adheres to the surface of the skin beyond the sore, and so fixes the lint in position. If the skin of the patient is very tender, however, it is better not to use this, or you may risk a further break down at the parts where the strapping adheres to the skin. It is better, then, simply to cut the lint a good deal larger than the wound, and lay it smoothly on the part. If, with a pair of scissors, you make occasional short slits in its margins it will lie more smoothly over a surface more or less rounded.

Another good ointment for a bed-sore is made up of equal parts of three ointments—boracic ointment, lanoline, and plain vaseline. Ichthyol muslin makes at times a useful dressing. It has, however, the disadvantage of being expensive, and it is easily rubbed into wrinkles. When it can be kept fairly smooth it is quite a good thing to use. Cut a piece a little larger in size than the raw surface, make small slits in its margins with the point of the scissors, and apply it smoothly over the sore. Sometimes the soft plaster on the surface of the muslin is found very difficult to remove from the surrounding skin. Don't try to wash it away, but rub it off gently, and with some pressure, by means of small dry pads of cotton wool, or if very adherent dip the pads in a little olive oil. Zinc ointment is used at times for bed-sores, but it is sticky and adheres too much to the raw surface.

Boracic poultices are sometimes good where the discharge is considerable on the surface of the sore, and a starch poultice is still more efficacious.

Occasional dressing with red lotion very much hastens recovery. The manner of applying this is described in Chapter X. Unfortunately it is often very difficult to keep this dressing in position if the patient is restless and the affected part happens to be at the foot of the back.

It is impossible to say which of these and many other dressings is the best to use for a bed-sore, because one will suit one patient's ease, while some other will be found to be beneficial in another. At all times it is wise to vary the dressing occasionally, but where a particular ointment or lotion appears to suit the bed-sore let that be the one mostly used. I hear people talk as though careful dressing night and morning were all that is required for a bed-sore, but in many cases the dressing must be changed much oftener than that. Should you imagine that it may be damp or have become wrinkled, then examine it, and when necessary apply a fresh dressing after carefully cleansing, the raw surface with pads of cotton wool dipped in salt solution or boracic lotion. Just as in the prevention of bed-sores the great necessity for their cure is *perfect cleanliness and dryness*.

CHAPTER VI.

FEEDING THE PATIENT.

IN perhaps none of her duties is a nurse able to assist the physician more than by attending carefully to all matters connected with the patient's food. To do this intelligently it is almost essential that one should know something of the relative values of the foods commonly used in the sick-room, and of the ease or difficulty with which those are digested and absorbed. Conscientious care in the choice and cooking of his food must inevitably mean a better state of nutrition, and the saving of much strength for the patient, and yet how perfectly indifferent we often find people in regard to this. They appear to rely on the medicines prescribed to supply all deficiencies in the diet provided, and to correct all its errors. Yet the patient is infinitely more dependent upon his food than upon any medicine. Therefore one should never spare any effort to provide him with dishes likely to be appetising, and at the same time suitable to his condition. Sometimes an illness is prolonged simply because the patient feels quite unable to take the food you offer him, and often in such cases one's ingenuity is taxed to the very uttermost in finding food suitable for his uncertain appetite. Much will depend upon forethought, but don't make a habit of consulting your patient about what his various meals are to be composed of. If a patient

knows for sometime beforehand exactly what he is going to have at a meal he rarely does eat so well. Surprise him with some delicacy nicely cooked and daintily served, and then he himself may be surprised into taking more than, an hour before, he would have believed possible. Very likely had you asked him then whether he would take it his reply would have been negative. At the same time, of course, one must try tactfully to learn and to observe what a patient does like, and humour as far as possible all his little tastes and fancies. Should he chance to express a wish for anything in particular, ascertain, if necessary, whether it would be good for him, and then, if he is to be allowed to have it, arrange that he shall as soon as possible, or the desire may pass off, and what might be a means of having him take a little more nourishment than usual will be lost.

It is not enough just to see that the patient's food is cooked as it should be. Much depends on how it is served, and daintiness in this respect is of first importance. Bring the food to the sick-room in a way that will attract and please your patient, and you have done more to get him to eat than if you had spent half an hour in arguing on the necessity of his doing so. Apart from this, if a patient's food is served in the most pleasing manner possible, you probably ensure his getting much more good from it than he otherwise might. If the appetite or desire for food is increased, the chances are that, because of this, the gastric glands of the stomach will supply a larger amount of gastric juice for its digestion. People rarely realise that this is so, or much more might be done, in the matter of serving meals, to aid the appetite and digestion. Use always the nicest tray-cloth you can find; there is something depressing to the patient in a meal which is set out on a cloth worn, partially soiled, or carelessly laundried. It ought to be spotless even when the

number of tray-cloths available is limited, because it takes no great effort to keep one dainty and fresh, it can be so easily washed and ironed between meals. Sometimes people think that a pretty tray needs no covering, but this is a mistake. All food looks more appetising when set out on a fresh, white cloth. Let the forks, knives, and spoons be bright and well kept, and see that all glass and china are most scrupulously clean—not bearing traces of cloths used in drying it, or perhaps even of some former meal. Just as in the case of the tray-cloth use the best china you have for your invalid. How much nicer, for instance, his tea will taste from pretty delicate china, than it will from a cup of coarser material, or one of enamel. Have everything on a tray that he is likely to require, and arrange it nicely so that it may not look untidy. Don't forget a small vase with one or two fresh flowers. A little thing like this often helps more than one would believe in making the invalid enjoy a meal, while carelessness or untidiness frequently means that he will leave half the food on his tray.

Don't neglect to warm the plates when the patient's food is to be served hot, and see, when this is so, that it is quite hot and not just lukewarm. Tepid food is always objectionable to an invalid, although, of course, it should not be so very hot that he must wait for its cooling before he can eat it.

In cooking a patient's food the most scrupulous cleanliness is always necessary, and every ingredient used ought to be the freshest and best obtainable. If anything is stale or tainted you may not only impair the patient's digestion, but you may teach him to dislike fish, eggs, or perhaps some other food which, otherwise, would be very useful throughout the course of his illness.

Try to have as much variety in his food as possible, because, very often, his meals are almost

the only events to him in the long monotonous days. If the doctor has limited the kinds of food to be used try to vary the ways in which you prepare those. Never place a superabundance of food before your patient, but aim at giving him less, rather than more, than you think he is likely to take. By attention to this point you will, in the end, succeed in getting him to take a much better meal than by placing in front of him a plate loaded with food. This only creates a feeling of loathing for the food, while after a small helping he will probably feel quite inclined to ask for more, and it is very easy to let him have it. Let each course be brought to the sick-room hot as he requires it, for if the whole meal is brought at once parts of it will inevitably grow cold as he eats the earlier courses, then, once he has finished, remove all remains of food from the sick-room. Very often people leave jelly, or pudding of some kind, standing about with the idea that the patient may take it later, but there is no better way to destroy the appetite than to have food everlastingly about the sick-room.

The habit that some people have of tasting the patient's food in the sick-room is one greatly to be condemned. It may be necessary and wise to be sure that you have in it the proper quantity of salt or of sugar, but ascertain this before taking it into the sick-room, and don't use the patient's own spoon to taste it with. In carrying the food into the sick-room don't spill in the saucer or on the tray-cloth, because this is quite one of those small things which might give rise to a distaste for food. When possible it is best not to prepare any food in the sick-room, as a patient never enjoys so much, food which he has seen made ready. Take trouble to prop your patient up quite comfortably before he commences a meal, or he may grow weary or uncomfortable and wish to lie down before

he has eaten quite all that he might. Conversation during a meal is quite a good thing. It often rather helps to make the patient eat, and it prevents him from making a hurried meal, which must be guarded against, because it is sure to lead to impaired digestion, and so to more defective nutrition. More particularly when the patient is not able to feed himself is one apt to hurry. With the feeding-cup to the lips I have repeatedly seen people force a patient to bolt his food with a rapidity which they, to say the least of it, would consider most unpleasant were they compelled to take the food themselves. Very often, too, in such cases milk is the food being given—just the one of all others which the patient should be allowed to sip. Don't allow him to read during the meal, as this to some extent interferes with the thorough digestion of the food.

When a patient cannot sit up he must be fed with a feeding-cup. The old-fashioned one with a spout and a handle is distinctly to be condemned, because of the difficulty there is in keeping it quite clean. In some such feeding-cups this is simply an impossibility, and so the food must pass through a spout coated with impurity and germs. The "ideal" feeding-cup is, I think, one of the best I know, because it has no spout. It can be procured either made of glass or of china. If you can have one of both so much the better; your patient will enjoy his milk from the glass cup, while he will like to have his tea from the china one. As soon as possible, however, let

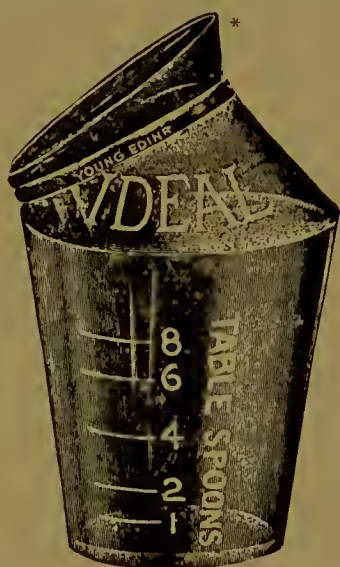


FIG. 4.—"Ideal" feeding-cup.

* Part placed to patient's lips.

him have tea from an ordinary teacup. If one is careful in assisting him it is wonderful how soon he can manage to take it from this. Even when unable to sit straight up, I never find that people care greatly for tea served in a feeding-cup, but sometimes it is the most convenient thing to use. To feed a patient with one pass the forearm under the pillow, and raise pillow and head together. Next place the spout of the cup, or the lip of this in the case of the "ideal," between the lips, and tilt the cup in order to pass about a tablespoonful of the food into the patient's mouth. Take the feeding-cup from the lips until this is swallowed. At intervals while feeding your patient withdraw your hand from under his pillow to give him a little rest, and so you avoid giving him a feeling of being hurried.

As already said, the nurse must give much conscientious care and thought to the patient's food, and one of the most serious results of carelessness in regard to this is indigestion. The slightest variation from the normal state of health may give rise to this, so that one must be on the watch to prevent its occurrence in almost every case of illness, but more so in some than in others. The mere fact of lying in bed, if the patient has been used to plenty of exercise, may give rise to it. Very often a patient's disinclination for food is simply due to the fact that his stomach is not in a condition in which it can digest it. Then, unless he is very weak, let him have his way in partially, or entirely, omitting a meal, and very possibly this rest to his stomach may ward off an attack of indigestion. An interval without food will often do more than medicine for the cure of indigestion by giving to the stomach the physiological rest which it needs. When a patient is too weak to go for any lengthened interval without food try giving it to him in very small quantities and at short intervals to avoid overloading his stomach at one time.

One must observe, when the patient is liable to have attacks of indigestion, whether he appears to masticate his food properly. Very often I notice that a patient trespasses greatly in this respect. It is rather a delicate matter at times to hint that he eats too quickly, but sometimes one can tell him tactfully something of the need for thorough mastication.

If any particular food appears to disagree with the patient, and if it is one likely to be useful in maintaining his strength, try to lessen the quantity used rather than take it completely out of the dietary. The patient may quite easily digest this smaller supply. The condition of the bowels should be watched, and both constipation and diarrhoea must be guarded against. When you fear indigestion don't give too many different things at a meal; let whatever is used be simple and well cooked, and don't allow the patient to drink large quantities of water with it.

When the wish for, and the power to digest, food begin to fail it is usually meat that the patient complains that he cannot eat. Then bread and other things are objected to, and sometimes we find that the only safe course is to keep the patient on fluid food for a time, because this entails less work, from the stomach, for its digestion.

In cases where the temperature is high one must pay the greatest attention to the condition of the digestive organs. It is just in those circumstances where there is evident waste of tissue and strength that one is apt to overfeed the patient. And so, while giving the patient as much as you believe he is *able to take with safety*, be careful to give *only food which is easily digested* and absorbed. Usually, in cases where the temperature is raised, the gastric glands of the stomach are impaired, and are not producing gastric juice in sufficient quantity or of sufficient strength to deal with any but just the most easily digested foods,

and often even these can only be given in limited quantity. In cases like those, if you persist in giving the patient food which he has not the power to digest, you only increase his discomfort. Of course there are sometimes cases where the temperature is not much over normal, or in which the digestive powers are not greatly weakened, and in these one can use much greater liberty in feeding the patient than in others where the temperature is very high and remains so, and in which the digestive powers are apt to be feeble.

Long ago there used to be a maxim "Feed a cold and starve a fever." The latter part of this advice is scarcely the teaching of to-day. Instead we try to nourish the patient as well as lies in our power, but only so far as we can do so without interfering with the digestive processes. Usually doctors insist upon our feeding a patient whose temperature is high with fluid food only. This is more easily acted upon by the gastric juice than is more solid food, and is, in consequence, less likely to give rise to irritation. Then it does not require chewing, a difficult process at times in fever, because, like the gastric glands of the stomach, the salivary glands of the mouth are weakened and do not secrete saliva in the same quantity as when a person is in health; in consequence of this the food is apt to be only imperfectly moistened in the mouth.

Milk is a food very valuable, as a rule, in the sick-room, but in fever cases it often requires special preparation to make it suitable for the invalid. When he can digest it, however, it is a useful food for a patient in this condition. Beef tea, chicken and veal tea, white of egg, with occasionally a little meat juice, upon these we must ring the changes principally while the temperature is high, making milk the chief article in the dietary provided the patient is able to digest it. Sometimes somatose or plasmon can be added with advantage to the food.

Very frequently when nursing fevered patients I have noticed that his friends seemed to look upon it as a kind of lost opportunity if, when asked for a drink, I gave him water instead of persuading him to drink milk or beef tea instead. Water, however, in cases of fever is quite a good thing so long as you see that your patient is taking a proper amount of food as well. By giving the patient plenty of fluid to drink, you flush the tissues, and, in this way, help to rid them of the poisons, produced by disease, which are raising the temperature. If you think your patient is not often asking for a drink offer him one occasionally.

The intervals between food must depend on his condition. Sometimes a few tablespoonfuls, or less, is all that he can digest at one time, and then the feeding must necessarily be frequent—every hour and a half perhaps, or every two hours.

You must not imagine that once a patient has become convalescent all need for much thought in regard to his diet is over. On the contrary this is just the time when one can do a great deal to further the patient's recovery by getting him to eat good, nourishing food. This must of course be managed with thought, especially in the earlier stages of recovery when often you require to supervise the feeding with every possible care. Very often the patient would like to eat far more than it would be wise to give him, and too often people, anxious to take advantage of this desire for food, do much real harm in indulging it. This is especially the case in recovery from typhoid fever, when, very often, there is the most terrible craving for food. During convalescence, if you know that a patient's digestion *is able to deal with* a fair amount of food, much may be done to tempt his sometimes feeble appetite, and this is just one of the ways in which a nurse can do a very great deal to aid recovery. She ought to think of all the little delicacies likely to be pleasing to the

invalid, and in this and in every other way she should aim at getting him to take all the nourishment possible. Food during the night is quite a good thing, but, given then, it must always be light—milk, Benger's food, beef tea, or occasionally meat juice will do very well. A patient who is weak ought never to go for a whole night without food.

Milk is the food which we find most generally useful in the sick-room. Very often it is spoken of as "the perfect food," and it deserves this title in that it contains all the elements which are necessary to life. The proportion in which these exist in milk do not make it fit to use as the sole article of diet in the case of a person who is well and taking the usual amount of exercise, but, in some diseases, it is found to be the only food suitable for the invalid, and as an adjunct to the diet, when more varied feeding is possible, it is quite invaluable. Then it is easily swallowed by a patient who would not readily be persuaded to take more solid food, and as a rule it is easily digested. One must not lose sight of the fact, however, that milk carries with it great possibilities for evil in regard to the spread of disease. Therefore it must be kept in a pure atmosphere and only in vessels which have been thoroughly cleansed beforehand. There are circumstances at times which make its sterilisation an absolute necessity.

In cases when you fear that the patient will not be able to digest his milk it must be specially prepared for him. I have already said that in cases where there is fever we are usually told to give only fluid food to our patients, and in regard to its use in such cases there is one great objection to milk. Milk when it reaches the stomach is no longer a fluid food. There, owing to the action of a substance called rennin, it clots and so becomes to a certain extent solid. In cases where the digestive powers are weak it is apt to become so tough and hard that the gastric

juice in the stomach cannot act upon it and the patient consequently suffers from indigestion. In many cases, to avoid this, we must alter the milk. An equal quantity of water added to it often causes it to be quite easily digested. Sometimes barley water is used instead of plain water, or an equal quantity of some effervescing alkaline water, such as soda or potash water, can be put into it. A thirsty patient often takes it very readily with soda or potash, but in cases in which the patient suffers from thirst one must always notice that the milk is not taken too rapidly, as this will add greatly to the chance of its disagreeing with the patient. When there is any probability of difficulty in digesting milk it should be sipped only very slowly. Lime water added to milk is often very efficacious in increasing its digestibility, but sometimes the only way in which we succeed in making the milk suitable for the feeble digestion of an invalid is to peptonise it. This must be done carefully, otherwise the milk will become bitter or curdled, when, of course, it is no longer fit for the patient. Generally Fairchild's peptonising powder is used, and directions for peptonising the milk with this are given along with the box in which the tubes, containing the powder, is sold. The milk to be peptonised is placed in a cup or glass, and then the amount of peptonising powder required for the quantity of milk to be peptonised is mixed into a teaspoonful of it. Stir this into the remainder of the milk in the glass and place the latter in a bowl of water about 105° to 110° F. Generally after standing in water at this temperature from 10 to 15 minutes the milk is sufficiently peptonised for the needs of the invalid. In cases where you fear indigestion from milk let it be taken in small quantities and at short intervals to avoid overloading the stomach at any time. In cases where some solid food can be taken a biscuit along with the milk serves to make it more easily digestible,

or it can be thickened with a little arrowroot or Benger's. Milk with salt and soda added is often found to be very good in cases where the digestive powers are rather weak. Put a pinch of salt and one of soda into a glass, then heat the milk in a saucepan until there is a skin above it, and pour it over the salt and soda. Don't keep back the skin, as that contains some of the nourishment in milk. A patient soon learns to like milk so prepared very much, and I find it a very good way in which to give it during the night, as so often, after it, the patient readily falls asleep.

When a patient is kept on a diet of milk alone I frequently find it most difficult, indeed, to persuade him to go on with it, or to take a quantity sufficient to maintain his strength. At times we may only be allowed to give the milk in a peptonised form; but otherwise, when the doctor permits it, one should try to vary it in every way possible, so that the patient may be less apt to grow tired of it. At one time he may have it hot, at another he may like it with ice in it. Then sometimes it may have an equal quantity of soda water, plain water, or barley water added to it, or occasionally it can be flavoured with a little chocolate, or, if the patient likes it, with coffee. If allowable one may give him his milk made into junket at times, and, for the preparation of this in invalid cookery, it is better to use pepsencia than the ordinary rennet. Sometimes I have given the milk prepared as a jelly, and it is better to use good calf's foot jelly in making this than a little gelatin, as usually we find people doing. In such ways a nurse, if she takes trouble, can do a very great deal in persuading a patient to persevere with milk as his diet when the doctor considers it the best for his particular case. I find it often difficult to get good cream for my patient, but when it is possible to have this fresh and of good quality it is a capital means of introducing fat into his diet, because it is, as a rule, so very easily

digested; in fact it is quite the lightest form of fat that you can give to an invalid.

Beef tea, as is now pretty generally known, is not to be regarded much in the light of a food, but more as a stimulant. It does help to save a patient's strength, however, when properly made, and makes a nice little variety in his feeding when he happens to like it. If beef tea is to be of any use as a food it must be well made. I have seen it cooked at a temperature reaching boiling point for several hours, and one might just as well give a patient hot water to drink as beef tea made in this way. I give directions for its preparation, and the temperature of 170°F . at which I say it ought to be cooked is not by any means too low. Far more nourishment will be withdrawn from the meat by cooking at a temperature like this than by prolonged boiling, and people waste many pounds of good meat from mistaken ideas in regard to the preparation of beef tea. Another mistake which I have noticed occasionally is that of having the beef tea so thick as to be absolutely distasteful to the invalid. This is more apt to occur in a case where the doctor wishes some of the fibre of the meat to be pounded down and added to the tea. I have found that patients invariably dislike this tea if it is too thick, and probably you will eventually get your patient to take more of the meat if you humour him by adding a little more stock, or even hot water, to the tea. In regard to beef tea, just as in milk, one should try to make the food more palatable by occasional variation in its preparation. Sometimes a little of Liebig's extract of meat added to it pleases the patient, or again he may like some vegetable flavouring, and then you can tie such vegetables as carrots, turnips, parsnips, parsley, or celery in a small muslin bag, and cook them along with the beef tea. A little thickening may, at times, be added to the beef tea, such as sago, ground rice, arrowroot, or baked flour.

Chicken tea is very light, and quite useful as a little variation in cases where we are restricted to fluid foods, but I find that a patient is apt to grow tired of it should he have it given him too frequently. **Veal tea** he generally likes very much, and a combination of beef tea, veal tea, and chicken tea is very good. One great advantage of those as foods in the sick-room is that they rather stimulate the appetite and the flow of gastric juice in the stomach, and so some clear soup like this at the commencement of a meal may cause the patient to take more food than he might otherwise do.

Meat juice is at times a valuable addition to the patient's diet, and I find that he always takes that prepared at home far more readily than any that you can buy provided that it is made carefully. Directions for its preparation are given elsewhere, but note that one should procure only the newest and best meat from which to make it; and a point of great importance is the necessity for having a fresh piece of muslin for every supply that is made. Particles of meat will adhere to the muslin no matter how carefully you may wash it, and those, putrefying, will produce acids which will cause the juice to be brown and sour, and consequently quite unfit for the patient. As it is not taken in large quantities this is a food very suitable for giving to a patient during the night, or even between meals.

Different jellies, such as calf's foot or chicken jelly, are much used in our sick-rooms, and a patient often takes such food very readily. One must not, however, allow it to replace things likely to be more nourishing.

Eggs we find valuable at times in getting additional nourishment into the dietary. Added to puddings they often supply just the very elements that those are apt to lack, namely, proteid and fats. It is generally known that eggs are most easily digested

when given raw. Both yolk and white are sometimes switched together, and given in tea or in milk, but when the digestive powers are much enfeebled it is wisest to keep back the yolk, and just to beat the white to a slight froth. This will be sufficient to rupture the walls of the millions of tiny cells inside which the nourishing material in white of egg is contained, so that the gastric juice will more freely act upon it. I find that if the white of an egg is beaten to a stiff froth it becomes almost nauseous at times to the patient, and, unfortunately, he is not as a rule very partial to this food in any form, although I always try if possible to persuade him to have it twice in the twenty-four hours. If slightly beaten, and mixed with a little water or milk it is generally swallowed without much difficulty, or, better still, it can be given with soda or potash water.

Notice when you prepare a milk pudding for your patient that it is thoroughly cooked, and this is of special importance in regard to rice. If the grains are not perfectly soft it is sure to be indigestible.

Frequently I have very badly made toast sent up to my sick-room. It is far better to let the patient have bread which is a little stale than toast made by singeing a thick piece of bread on either side. Let the bread be cut very thin, and slowly toasted to a light uniform brown.

Fish generally is one of the lightest forms of solid food which we can give to an invalid, and whiting is considered the most digestible variety. Haddock and sole come next. Cod is less easily digested, and does not contain a great amount of nourishment. Salmon, herring, and the various forms of dried fish can, of course, only be used when the digestion is unimpaired. Boiling and steaming are the best ways in which to cook fish which is to be used in the sick-room. Baking and grilling are also quite good; but

fish for an invalid should not be fried, because, cooked in this way, it absorbs much fat which will prevent the gastric juice in the stomach from penetrating the food as it ought to for digestion. See that the fish is never undercooked, as any carelessness in regard to this makes it very bad for a patient; and no fish should ever be used in the sick-room which is not thoroughly fresh.

Unfortunately a patient readily grows tired of chicken, but when he likes it we find it quite valuable as a form of more solid food. Game is apt to be costly, but some varieties of it are easily digested, and, in one respect, it is better than chicken—its bitter flavour acts as a stimulus to the appetite. Those varieties of poultry and wildfowl which have the lightest flesh are, as a rule, the most digestible.

Rabbit is very frequently served in the sick-room, but it ought not to be used quite so often as usually it is, because a patient very readily grows tired of it, and it does not contain any large amount of nourishment.

It is only after the digestive powers are restored to almost their normal strength that a patient can, as a rule, take beef or mutton with impunity, and such food should always be cooked slowly and for a long time.

Thirst. In cases where the doctor limits the amount of fluid to be given to the invalid, teaspoonfuls of hot water will be found to quench the thirst very much better than cold water will, but sometimes after taking chloroform the patient is not even allowed fluid from a teaspoon. Then try the effect of dipping the corner of a serviette into cold water, wring it slightly, and allow the patient to suck this. This often does give comfort, and sometimes in such circumstances I syringe the mouth frequently with either soda or potash water. Place a towel or serviette under the patient's chin, get him to incline the head towards one side, and to hold the bottom of his soap

basin close to the lips. Next, fill a small glass syringe with soda or potash water, and syringe this all round the mouth, refilling the syringe as required. This syringing is often very pleasing to the patient, but in cases where fluid is forbidden you must be careful that he does not swallow any passed into the mouth in this way.

When a patient is having ice to suck, the block procured for his use should be wrapped up in an old blanket, and placed in a tub or bath in some cool place, otherwise it will not last for long; and be careful to pour away very frequently any water collecting in the bath from the melting of the ice. To break off pieces of ice for the patient's use, use a strong hatpin. This will break off the small pieces required better than anything else. Pieces about half the size of a walnut, or still smaller, are broken off and washed. Then tie a piece of muslin, or a fresh handkerchief, tightly over the top of a breakfast cup, and pile up the pieces of ice above this. Water from the ice will then pass through the muslin, and collect in the cup, while the ice, remaining, "high and dry" above, will last much longer than if it were simply kept lying inside a cup or saucer. It is better when giving a patient ice to let him suck it through a clean fresh handkerchief than simply to place it in the mouth with a teaspoon.

Recipes for some refreshing drinks are given at the end of the book, but usually a patient prefers plain water to all others. Effervescing waters are rather apt to cause trouble by producing flatulence.

CHAPTER VII.

GIVING OF MEDICINES, STIMULANTS, ETC.

IN giving medicines there are certain rules which it is well to observe.

1. Always read the label on the medicine bottle before and after pouring out a dose, no matter how often you may have given it before.

2. Pour the medicine from that side of the bottle which is not labelled, otherwise the fluid may trickle across the label and so obliterate directions.

3. In giving medicines keep as much as possible to regular hours. As a rule, however, the patient should not be roused from sleep for medicine, but if it be due see that it is ready the moment that he does awake. When the medicines are ordered to be given three times during the day, the nurse should make the intervals between each dose as equal as possible, because, generally, in such cases the doctor intends that the effect of the first dose will not have passed off before the next is due.

4. In giving medicine always make it a habit to shake the bottle before pouring out the drug, as sometimes even in a mixture which looks quite clear, certain ingredients may be heavier than others, and so may tend to fall to the bottom of the bottle.

5. Always measure medicine with a proper medicine glass. Never, when drops are to be given, measure the quantity by the number of drops falling from

the bottle, but always use a properly graduated minim or drop-glass. See that the medicine glass is washed after each dose, and when several people are having medicine at the same hour, let the glass be washed between each dose in cold water, because a nauseous, disagreeable medicine will taste more unpleasant from a warm glass than it will from a cold one.

6. Medicines, and external liniments and lotions should never be kept together, because poisoning accidents are then liable to occur. In those cases in which a patient has become accustomed to some medicine from long use of it, so that he can take doses large enough to poison a person not in the habit of taking it, the bottle or pill box should not be kept alongside other medicines, or the wrong person may take a dose.



FIG. 5.—Medicine glass.

7. Never allow your medicine bottles to stand without corks, and don't collect old medicine bottles, because no medicine can be good once it has grown stale.

8. Before giving a nauseous medicine let the patient have something to moisten the mouth with, because, after this, the medicine will taste less unpleasant than it would in a dry mouth. To get rid of the unpleasant taste left by it in the mouth, a crust of dry bread is quite the best thing to use.

A prescription written by a medical man consists of drugs carefully selected to suit the particular case for which it is intended. Therefore, the practice of

passing on to other people a prescription which has been intended only for the patient being treated is a most foolish and even a dangerous one. It is the duty of a nurse to see that all directions for giving the medicines are most carefully carried out, and, should one dose be forgotten, never try to make up for this by giving a double dose on the next occasion.

Certain medicines, notably aperients, are ordered to be taken when the stomach is empty, *i.e.* "before meals," in order that they may be the more quickly absorbed. Others, particularly irons and acids, which might have an irritating effect on the inner lining of the stomach, are given immediately after a meal.

When giving a medicine always try to give it in the way least likely to be disagreeable to the patient. In giving "Gregory's mixture" for instance, it is quite worth one's while to mix it smoothly with water in a cup first, and then pour it into the glass in which it is to be administered. It looks so far from appetising when it is spread up against the sides of the cup or glass. The best way in which to give a disagreeable medicine like this is in a wafer-paper. Get a little box of these. They can be had from any chemist, and, being made simply of rice paper, are quite harmless. Lay a single one on a saucer, pour a little cold water over it, and when it is thoroughly moistened, without being made too soft, pour the water from the saucer, and then place the powder above the paper. Then, with the handle of a teaspoon, wrap the powder carefully up inside the paper. Give the patient a little water first, then the powder in a teaspoon, and then a little water again to enable him to swallow this more easily. See that there are no cracks or holes in the paper before giving the powder, or the patient will taste it, and of course warn him not to chew it if he is having medicine for the first time in a wafer-paper. Large powders which will not dissolve in water are often given in

this way, but more often a medicine like this is simply mixed smoothly in a little water. If the medicine is one given only in small quantities, it may be laid on a little bread and butter, or put on the patient's tongue. At times we find that a powder will dissolve more easily in some effervescing alkaline water like soda or potash than in plain water.

Castor oil is a very unpleasant medicine to take, because it clings to the lips and mouth, and even the best preparations have a more or less disagreeable smell. Usually it is given in strong coffee without either sugar or cream. Put the medicine glass and castor oil bottle into a bowl with hot water. Heat the coffee and pour about a tablespoonful of it into the glass, then put in the amount of castor oil to be given, pouring it slowly and gently into the centre of the coffee, and put a little more hot coffee above it. Hold the nose firmly, and then take the castor oil at a gulp. Still keep hold of the nose while you eat a piece of bread. Taken in this way the patient is scarcely conscious of the smell which makes this medicine so disagreeable. People frequently give castor oil to children in hot milk, but there are objections to this method, because the child may be taught to dislike what is at all times a very valuable adjunct to his diet. A much better way in which to give this medicine to a child is to squeeze about a tablespoonful of the juice of an orange into a medicine glass previously rinsed with hot water, pour the castor oil into the centre of this, and then put a little more orange juice above it. Castor oil can of course be had in capsules, but this is not, after all, a convenient way in which to give it, as so many are required. The chief drawback to the use of castor oil as a purgative lies in the fact that, after the immediate effects of it have passed off, it rather tends to increase tendency to constipation.

Cod liver oil is a very valuable food medicine, and there are now many almost odourless preparations of it to be had. To get the stomach accustomed to it, a dose is given on going to bed for a few nights to begin with, and later it is taken two or three times a day. The ordinary cod liver can be given in orange juice just as castor oil is. A little salt afterwards helps very much in getting rid of the taste of this medicine. There are a great many different preparations of malt and cod liver oil combined, and those, as a rule, are easily taken by children. Sometimes they object, however, to having a large mouthful given in a teaspoon, and take it more readily spread on bread like jam, or stirred into a little hot milk. Grown up people sometimes prefer to have their malt and cod liver stirred into a cup of strong coffee.

Medicines with iron or strong acids are apt to injure the teeth, so that usually those are given through a glass tube, and the mouth is afterwards rinsed with carbonate of soda and tepid water. Such medicines should always be well diluted, because if given too strong they may injure the stomach. Indeed, in giving most kinds of medicine it is well to add plenty of water. Acids and medicines containing iron are usually given after food, while alkalies are given before meals. People are too ready in these days to look upon iron as a cure for all cases in which a person's strength appears to be reduced. In some of those it is quite harmful, and so medical advice should always be sought before commencing "a course of iron."

Some people experience great difficulty in swallowing pills, and small pills are the most difficult to take. Usually when the pill is placed well back on the tongue it can be swallowed without much trouble. A good way in which to give a pill is to let the patient have a piece of bread and butter to eat, and, when he is just ready to swallow this, give the pill.

Sometimes one can break up a pill in order to let the patient take it more easily. Before doing so, however, it is better to have the doctor's permission, because sometimes he gives medicine in the form of a pill with the intention that it will not be dissolved until it passes from the stomach. When a pill is to be used as an aperient it is taken at night, because it takes longer to dissolve than other medicines do. Cachets are dipped in water immediately before being taken, and then they are generally easily swallowed with a draught of water.

Seidlitz powders are often given wrongly, both powders being mixed together in the same glass. Mix each powder in a small quantity of water in a separate glass, and at the moment when the patient is ready to take the medicine, the contents of the one glass should be poured into the other, because the medicine ought to be swallowed while carbonic acid gas is being given off. If each powder is thoroughly dissolved in its own glass there will be no disagreeable sediment at the bottom of the draught.

Mineral waters, such as Apenta, Friedrichshall, Püllna, and others, should be taken hot, for although less agreeable they are more efficacious when taken in this way, and less will do.

Cascara is frequently taken in capsules, but in spite of the very disagreeable taste it has, one is better to take it in the ordinary way. In most cases when an aperient is being taken habitually larger and larger doses are required as time goes on; but when cascara is the medicine being used, the reverse is usually the case, so that when it is simply given in a little cold water the amount can be regulated to the requirements of the patient.

People ought so far as is possible to avoid the habitual use of aperients by attention to the diet. If plenty of ripe fruit and well-cooked vegetables are used, and

if brown bread and porridge have a place in the daily diet, tendency towards constipation may to a large extent be overcome. Sipping hot water in the morning while dressing or on going to bed at night is frequently found to prove very efficacious. Sometimes massage is employed to improve matters, and then the rubbing must be up the right side of the abdomen, across it, and down the left.

Often great tact is required to persuade a child to take medicine. A little firm, gentle persuasion is far better than force in getting the child to swallow it, and if you can have the first dose taken quietly then much trouble will be saved. Never tell a child that a medicine is nice if you know it to be the reverse, or inevitably you will teach him to distrust your word. Rather put him on his mettle and make him feel that he is doing a brave thing in taking it quietly, promising him a sweet or something nice after the draught has been swallowed.

In the case of delirious or unconscious patients the lips must be separated with the handle of a teaspoon, and then the medicine is very slowly poured into the mouth from a teaspoon. Sometimes if one just touches the lips with the spoon containing the medicine the patient will involuntarily open the mouth, then the spoon can be got well into the mouth while the medicine is poured from it. If a patient like this makes no effort, however, to swallow the food or medicine, it is better not to persevere in trying to make him take it, or it may be drawn back into the air passages and give rise to irritation there.

Stimulants act upon and increase the activity of the nervous system, and in consequence of this the heart's action also. Whisky and brandy are stimulants very commonly used, and often I have seen them given far too much diluted. Except in the case of a child two tablespoonfuls of water to one of brandy is pretty much the right proportion to use. Because the stimu-

lating effect of brandy very soon wears off and depression follows this, we try to equalise its effect as much as possible by spreading it over the day in small quantities, given at short intervals. Thus if the doctor orders three ounces to be given in the twenty-four hours, give a tablespoonful every four hours. Usually whisky is ordered in preference to brandy, because it is more easy to procure good whisky than good brandy. Sometimes brandy is ordered at night to induce sleep. Get everything done for the patient before preparing it, and have the water quite boiling. Heat the glass by rinsing it with hot water, then measure and put into it the amount of brandy to be given, adding one or two lumps of sugar as the patient may desire, and then pour in the boiling water. A biscuit should be taken along with it. Very often alcohol is ordered as an appetiser to be taken along with a meal. In that case see that it is placed on the tray along with the food when the meal is carried to the sick-room. Sometimes, but rarely, wine is ordered between meals. Then the patient can have it with a biscuit, or he may like it in a switched egg. In the sick-room alcohol is to be looked upon entirely as a drug to be given only with the doctor's orders, because, apart from the fact that, in cases of weakness and sickness, alcoholic habits may very easily be formed, in many ailments alcohol proves most harmful.

Narcotics are given with the purpose of inducing sleep, and perhaps there is no class of drugs so apt to be abused as are those.

The chief causes of sleeplessness are poisonous substances in the blood-stream, such as those produced by disease, by alcoholism, or, it may be, by excessive tea or coffee drinking. The condition may be due to shock, hysteria, worry, overwork, or, it may be, to pain. During sleep there is less blood in the brain than while awake, and consequently when one finds that a patient is wakeful it is sometimes a good thing

to put an extra pillow under the head in order that less blood may go to it. Occasionally, as sometimes happens in cases of anæmia, the sleeplessness is due to a deficiency in the quantity or the quality of the blood supply to the brain, and frequently in such cases removing the pillow from under the head helps in inducing sleep. Cold feet are a very common cause of sleeplessness, and then one should try the effect of bathing the patient's feet in water as hot as it can be borne, with a little mustard added; then put on warm bed socks, and place a hot jar at the feet. Sponging of the face and hands and a cold cloth applied over the forehead often improve matters. See that the under sheet and draw-sheet are smooth and comfortable, and don't have an excessive weight of bedclothes over the patient. This is a frequent cause of restlessness, although on other occasions an extra blanket on the bed will tend to make the patient fall asleep. Make sure that the pillows are very comfortable, and place a nice cool one under the head. Keep the sick-room very quiet and well ventilated. A glass of hot milk with a little salt and soda in it very often helps to induce sleep. Sometimes a patient wakes during the night, very often in the small hours of the morning, and cannot get off to sleep again, frequently on those occasions a little hot food acts like a charm; hot milk and a biscuit may be given, or a little hot beef-tea if the patient prefer that.

When the doctor orders a sleeping draught for a patient, give it after the house is quiet and the patient settled in bed for the night. There is no good in giving a medicine like this so long as noises are going on in the house and in the street below. Unfortunately, it is very easy for the patient to acquire the habit of not being able to fall asleep without his draught, and therefore a nurse should do all that lies in her power to enable him to have some sleep without it if possible. Even if the sleep only last for a

quarter of an hour something has been accomplished in the matter of teaching the patient to fall asleep without a draught; at the same time the effort to fall asleep without it should never be continued for too long, or the patient may get into a restless condition which will prevent even the drug from bringing about the result desired. Once it has been given attend to everything that is likely to cause the patient to get the greatest possible amount of sleep from it. Notice what effect the narcotic has—the kind of sleep procured, whether deep, or light and with frequent intervals of wakefulness, and whether the patient groans or talks in it. Observe whether there is any feeling of headache or sickness next morning.

Narcotics should on no account ever be given to a patient without the advice of a medical man. Neither should those who are nursing, worn out, as perhaps they may be, from want of sleep, and yet when off duty unable to procure it, ever yield to the temptation to take a dose of morphia, chloral, or any other drug unless specially advised to do so by the doctor. A draught taken to procure sleep at those times is often the first step towards a moral degradation almost worse than that produced by alcoholism.

TABLES OF WEIGHTS AND MEASURES.

Solids.

20 Grains	makes 1 Scruple.
3 Scruples or 60 Grains	make 1 Drachm.
8 Drachms	„ 1 Ounce.
16 Ounces	„ 1 Pound.

Fluids.

60 Minims (or drops)	make 1 Fluid Drachm.
8 Fluid Drachms	„ 1 Fluid Ounce.
20 Fluid Ounces	„ 1 Fluid Pint.

DOMESTIC MEASURES.

1 Drop ¹	= 1 Minim
1 Teaspoonful	= 1 Drachm.
1 Dessertspoonful	= 2 Drachms.
1 Tablespoonful	= 4 Drachms or $\frac{1}{2}$ Ounce.
2 Tablespoonfuls	= 1 Ounce.
1 Wineglassful	= $1\frac{1}{2}$ or 2 Fluid Ounces.
1 Teacupful	= 4 to 5 Fluid Ounces.
1 Breakfastcupful	= About 8 Fluid Ounces.
1 Tumblerful	= About 8 or 10 Fluid Ounces.

¹Should never be used in measuring medicine.

CHAPTER VIII.

ENEMATA.

EVACUANT enemata are given to empty the bowel in cases of constipation and consequent collection of fæces. They act in two ways—by softening the matter in the bowel evacuation is made more easy, and in the second place, by the extra bulk passed

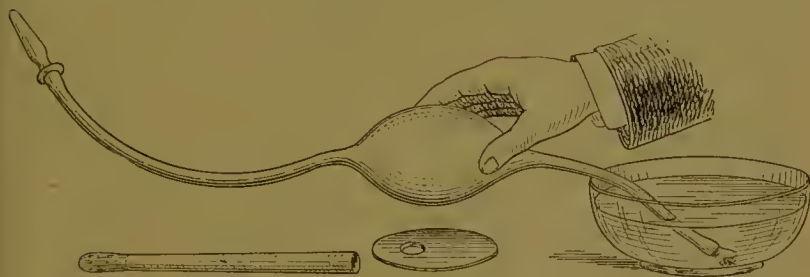


FIG. 6.—Enema syringe.

into the bowel the latter is stimulated to contract and so to effect the removal of the matter which has collected there.

Different appliances are used for giving an enema, but that most commonly found in the home is the pump or Higginson's syringe—a tube with a dilation in the centre which forms a ball. One extremity of this tube has a small metal mechanism inserted, which acts as a valve to prevent the fluid, drawn into the syringe, from flowing back into the basin,

and which must be kept always immersed in the water during the administration. The opposite end of the tube is attached to a small, white nozzle with a shoulder-piece. The syringe should never be kept coiled up in its box when not in use, or it is sure to become stiff and broken. It ought to lie loosely in a drawer, or, preferably, it should be hung up by the metal end. Before commencing to use the syringe pass some plain water through it to ascertain, before disturbing the patient, whether it is working as it should, and whether it is quite clean.

Soap and water enema. For preparing the lotion for a ordinary soap and water enema, an ounce of soap, in a pint of water, are the quantities usually required, although sometimes it may be necessary to inject as much as a pint and a half of fluid. See that it is neither too hot nor too cold, as this is a point in regard to which people are often most careless, and, in consequence, the enema is ejected before it can do any good. It ought to be given at a temperature of 99° F. Generally the ordinary soft, black soap is used, and an ounce of this means a piece pretty much the size of a walnut. Make a lather by rubbing this down into the water, and then, by alternately contracting and relaxing the ball of the syringe held in the palm of the hand, fill it with the fluid alone. This is of importance, because, if any air be allowed to remain in the syringe, it will be injected into the bowel, and so cause the greatest discomfort and even pain to the patient. Added to this, if air is passed into the intestine with the enema it is usually impossible for the patient to retain the latter. When air bubbles cease to rise to the surface of the water in the basin, from the syringe, while you alternately contract and relax the ball of it, you may be satisfied that you have driven out all the air and that it is filled

with water alone. Place the basin, containing the lotion and the syringe, on a chair by the patient's bed, and see that the bed-pan is at hand, previously warmed. The patient should be placed on the right-hand side of the bed and lying on the left side with the knees drawn up. Should circumstances render it impossible for the patient to lie on the side, then the position must be on the back with the knees drawn up. The enema, however, causes less discomfort and is more easily retained when the patient can be placed on the left side. If there is a possibility of difficulty in regard to its retention, take away the pillow from under the head, and place one under the thighs. In cases where the patient has little control over the bowel, the bed-pan should be inserted before commencing to give the enema, remaining under the patient while the fluid is being injected. Have a folded bath towel under the pelvis to protect the draw-sheet from dampness.

In doing nursing of this kind the nurse must be careful not to hurt her patient's feelings in any way, and the administration can be quite well given under the blankets. To find the orifice of the intestine pass the middle finger of the left hand forwards until you reach it, and keep it at this point while the nozzle of the syringe, well smeared with vaseline and covered with the right hand to prevent this from soiling the bedclothes, is brought to where the point of the left-hand finger is. When the nozzle of the syringe touches the anus, as the orifice to the intestine is called, its muscle will contract, and herein lies, very often, the cause of much discomfort to the patient, while inserting the white nozzle, because of its being forced into position while the muscle is in this state of contraction. Don't do this. Keep the nozzle in position for a moment after it has touched the anus, and then gradually the muscle will relax so that the nozzle can be inserted without any

annoyance whatever, being pushed in a direction upwards and slightly forwards. Except in cases where there is some disease, such as hæmorrhoids, for example, or where the patient happens to be a child, there ought to be no complaint of discomfort when you insert the syringe. If there is, then you may be pretty sure that it is being done clumsily. Give the injection very, very slowly, contracting and relaxing the ball of the syringe by squeezing it in the palm of the hand. One ought to take five minutes to give a pint if the administration is to be given without discomfort to the patient. Should you find that, because of resistance in the bowel itself, you cannot pass the fluid into it, then partially withdraw the nozzle from the anus, pass in another ballful of the fluid, put the nozzle back into position again, and then you will usually find that the fluid can be passed into the intestine without further difficulty. If the patient complains of discomfort while the enema is being given, stop for a little, without withdrawing the nozzle from the anus, and, usually, this will pass away. Be very careful that the metal end of the syringe is kept immersed in the water throughout the administration, or, inevitably, air will be drawn into it and injected. Should it chance, by accident, to be withdrawn from the water, then take the nozzle from the anus, carefully re-fill the syringe with fluid alone, and, after inserting the nozzle, go on injecting the lotion as before.

When the enema has been given, the patient ought if possible to retain it for ten minutes, so that it may be allowed to soften the matter in the intestine. It is of first importance that all the points mentioned in these directions for giving an enema should be most carefully observed, or it cannot possibly be retained as it ought to be, in order to bring about the desired result. It is at the best unpleasant treatment, so far as the patient is concerned, and always,

I find, causes a certain amount of exhaustion, so that by observing all possible care in giving the enema, one ought to try to avoid the necessity for its repetition from failure to clear the bowel at the first administration.

In ordinary circumstances it is enough to place the small white nozzle up to the shoulder-piece in the rectum, but sometimes you require to inject the fluid at a point higher up in the bowel than this can reach. A rectal tube of gum elastic is usually to be found in the box along with the syringe, but this is by no means the best thing to use, as it is hard, and not very flexible. A rubber catheter No. 16¹ should be procured instead, or a piece of red rubber tubing from eight to ten inches long. This should be of a diameter large enough to allow of its being passed over the white nozzle, and in this way it is attached to the syringe. The latter is then filled to the tip of this tube with soap and water, and then the tube, well smeared with vaseline, can be passed far up into the intestine without causing discomfort to the patient.

Instead of the old-fashioned enema syringe, a tube and funnel are now more generally used in our hospitals. One extremity of the tube is attached to the stem of the glass funnel, while the other is passed up into the intestine, the patient's thighs being raised on a pillow. The rate at which the fluid passes into the intestine is regulated by the height at which you hold the funnel.

Occasionally one is told to add olive oil to the ordinary soap and water enema, but more often the olive oil is given alone.

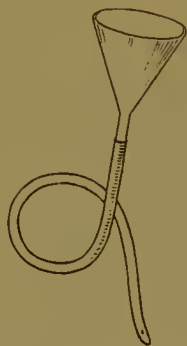


FIG. 7.—Tube and funnel.

¹ Lister's gauge.

Olive oil enema. A ball syringe may be used in injecting this, as with one of the proper capacity the amount given can be accurately measured with less risk of injecting flatus. Put the oil into an old jam jar, and place this in a bowl containing hot water, until the oil is at a temperature of 95° F.



FIG. 8.—Ball syringe.

Then contract the ball of the syringe by squeezing it in the palm of the hand, and, putting the point of the nozzle into the olive oil allow this to be drawn up into the syringe. The nozzle of the syringe, or, better still, a piece of tubing attached to this is then inserted, and the oil is slowly injected into the intestine. In cases where, owing to severe constipation, it is difficult to get rid of the matter in the bowel, it is far better to give warm olive oil followed in half an hour by soap and water, than to go on exhausting the patient with one soap and water enema after another in order to get the bowel cleared.

Glycerine enema. When the bowel is sluggish and does not act as it should, a teaspoonful of glycerine is sometimes injected with a small glass syringe. This, by irritating the bowel, causes it to secrete a fluid which softens the matter there, so that evacuation is made easy. People foolishly add water sometimes to the glycerine, with the idea that by increasing the amount of fluid injected, the enema is likely to prove more effectual; but this is a mistake, because if the glycerine is diluted it has little power to stimulate the bowel. Sometimes a glycerine suppository is used instead; smear this with vaseline and with the middle finger pass it well up into the intestine.

Turpentine enema. This is prepared by adding four

tablespoonfuls of turpentine to a pint of soap and water, barley-water, or gruel. If either of the two latter are used, the syringe must be thoroughly cleansed after use.

A salt enema is made by using a tablespoonful of salt in a pint of gruel.

Castor oil enema. Rub two tablespoonfuls of castor oil into one ounce of soft soap, and, when this has been done add sixteen to twenty ounces of warm water. Inject as before.

Starch enema. Put a teaspoonful of laudanum into eight tablespoonfuls of thin starch, and inject while it is still warm.

Barley-water. Inject sixteen to twenty ounces of barley-water.

NUTRIENT ENEMATA.

In some cases of gastric ulcer, and others in which it is necessary to give the stomach absolute rest, the patient is not fed by the mouth, and food must be injected into the bowel. In the case of an adult the quantity given varies from four to sixteen or twenty tablespoonfuls. Sometimes a whole pint of fluid is injected, but then longer intervals are made to elapse between the feeds. The food should be of the consistence of cream, and usually it is composed of some of the following ingredients—milk, eggs, strong beef tea, meat juice, Horlick's malted milk, and stimulants, if these last are ordered. By being peptonised, the food is partially digested before being injected, because food given in this way does not pass through the stomach. Directions for peptonising food are given in Chapter VI.

Previous to commencing this method of feeding, the bowel must be emptied by an enema, carefully given, of soap and water. For injecting the food, a piece of soft rubber tubing, or a large catheter attached to a

ball syringe, is sometimes used, but the rubber is apt to peel off this syringe and get into the food. The best thing to use is a piece of soft, rubber tubing¹ attached to a little glass funnel. Nip the tube, previously smeared with vaseline, a little way from the end of it, while someone fills the funnel for you. Insert the tube well up into the bowel, a second person compressing it near the funnel while you do so. Then allow the fluid to flow steadily, being careful to keep the funnel refilled till the proper amount is given. It is of great importance that this administration should be given carefully, as it may be the only, or almost the only nourishment, which your patient is having, and by injecting air, or in any way giving the enema carelessly, you make it impossible for the patient to retain it, or if he does, it is with discomfort.

If there is apt to be difficulty in regard to its retention, raise the patient's thighs on a pillow while you give it. Any carelessness or neglect of those details which may enable the patient to retain the food, is absolutely unforgiveable in a nurse, because this simply means that the patient is cheated of part of the small quantity of nourishment upon which he is dependent until the stomach is restored to a condition in which it can act upon food. Should there be difficulty, as sometimes happens in cases of great prostration, in getting the patient to retain the fluid, keep the pillow under the thighs, and press the hips firmly together for half an hour. This often gives the greatest assistance, and it is well worth the trouble, if you succeed in making sure that your patient will get some nourishment from the food administered. See that the patient does not move much for some time after food has been given.

Usually in this artificial feeding, solid food is given alternately with a liquid nutrient. This is injected

¹ A rubber catheter, if procurable, serves the purpose well.

in the form of a small cone; previously smeared with vaseline, it is passed with the middle finger of the left hand far up into the intestine. Put a little vaseline on the finger, and see that the nail is quite short.

To avoid risk of causing irritation to the bowel, food must not be given too frequently—once in every four hours is quite often enough. An enema of soap and water should be used every second morning to ensure that the bowel is being kept in a condition which will allow of its absorbing what is given.

A patient fed in this way often suffers greatly from thirst, and so, occasionally, and, of course, some time after food has been administered, half a pint of tepid water is injected into the bowel to relieve this.

Should the doctor allow any food to be given by the mouth at all, a tablespoonful of milk and lime water, taken in this way, will help to hasten absorption.

CHAPTER IX.

NURSING IN CASES OF EMERGENCY.

Hæmorrhage. In cases of accident, bleeding is one of the commonest symptoms found. It may be slight, or so serious as to cause the greatest alarm. The heart is constantly pumping the blood along tubes, having very muscular walls, spoken of as arteries. Those arteries convey the blood in all directions through the body, each branch dividing and subdividing in its passage through the tissues, so that eventually it becomes split up into the minute vessels known as capillaries. These reunite to form the vessels called veins. Their walls are not so elastic, as is the case in the arteries, so that the blood passing through them in its return to the heart, travels more slowly than it did when coming away from the heart through the arteries. According to the kind of vessel which is injured, we speak of the bleeding as being arterial, venous, or capillary; and the first is much the most serious, because blood escapes from a wounded artery with much greater force than from a vein. Therefore it is important that one should know whether the blood is coming from an artery, or from a vein. From an artery, blood is bright red in colour, while, from a vein, it is dark red—almost purple. More important it is still to notice the manner of its flow in discerning whether bleeding be venous or arterial—blood from an artery will spurt and jerk

from the wound, while, from a vein, it will flow steadily and smoothly.

In cases where the bleeding is severe, the surface of the body is pale, and covered with a cold perspiration, the extremities are cold, there may be unconsciousness, the temperature is low as a rule, the pulse weak and very quick, while the breathing is shallow and short. Those are symptoms or signs of collapse.

Arterial bleeding. We rely chiefly upon position and pressure in any effort to control bleeding from an artery. Lay the patient down and raise the bleeding part. If the blood is not flowing from the neck or from the head, the foot of the bed should be tilted up by placing under it blocks of wood of equal height, or, if these cannot be had, two strong, *low*, wooden chairs will serve the purpose. Two bricks securely placed under each leg of the bed, at the foot, will do when nothing better can be had. Raise the injured limb on a bolster folded under at the end where the extremity of the limb rests, in order to give an upward slope towards that point.

Very often a tourniquet is used to control bleeding from a limb, but in home nursing the ordinary tourniquet is not as a rule available, and we must improvise one. Get a large handkerchief, fold it into a triangle, and roll it up. Then, above the wound, tie it loosely, but securely, round the limb, using the reef knot. Quickly pass a stick under, and twist this round several times to tighten your tourniquet, so that you may put compression on the wounded vessel. Sometimes we improvise a tourniquet for the forearm, or lower leg, by rolling up a handkerchief to form a pad, placing this in the bend of the joint, and then a second handkerchief is brought, in a figure of eight turn, round the joint; the crossing of the eight comes in the flexure of the joint, while the loops pass round the limb. This also, to be secure, must be tied in the reef knot.

Digital compression. If one knows the points for it, digital compression (that is, pressure with the finger on the course of the artery) is the most effectual method to take for the arrest of hæmorrhage, and when possible it is best to use the thumb in applying this. To control the blood supply to the lower limb pressure is put on a point in the groin near the front, and it must be both upwards and backwards, so that the vessel may be compressed between the fingers and the bones of the trunk above. If there is space for it a tourniquet may also be applied to the limb above the wound.

To control the subclavian artery, which passes to the arm, pressure is applied in the hollow over the collar-bone, in order that the vessel may be compressed against the first rib as it passes over that. The thumb is the best digit to use, and you stand just behind the patient's shoulder, on the injured side. A very good instrument for compression of the subclavian artery, can be made with an ordinary door key. Wrap the handle in a piece of lint, or in a handkerchief, and press the vessel down against the first rib with this. Usually, if the wound is high up in the arm, the subclavian is the vessel compressed. If the forearm is injured compression is applied to the brachial artery, which is simply a continuation of the subclavian. Its course is pretty well represented by the inner seam of the sleeve of a man's coat, so that if pressure is applied near the armpit, it must be in an outward direction, farther down outwards and backwards, and at the elbow backwards.

To control bleeding from the head, press on the carotid artery between the larynx, or voice box as it is sometimes called, and the sterno-mastoid muscle at the side of the neck. If the bleeding is on the patient's right side press on the right carotid, and *vice versa*.

If the scalp or the face be bleeding, usually bathing

with very hot water and the application of a pad made of lint will stop the flow. In the case of a bleeding nose, let the patient stand erect, and hold the arms above the head. In this position, as a rule, the bleeding will soon be arrested; but should it prove obstinate the neck and face can be bathed with cold water, or, if necessary, the nostril itself may be plugged with narrow strips of lint or old linen.

Venous bleeding is, as a rule, much more easily controlled than arterial, and generally all one need do is to press a pad of lint, or old, clean linen, firmly over the wound. When a tourniquet is required apply it, in venous bleeding, below the wound, *i.e.* on that side of it which is farthest away from the heart.

In capillary bleeding the blood simply oozes from the wound, so that it is easily controlled by the application of cold or heat, and then a pad of lint or linen.

In arresting hæmorrhage, always remember that the wound *must be kept clean as possible*, because there is much more likely to be a recurrence of the bleeding if it is allowed to become dirty.

When bleeding is from one of the smaller vessels, the application of cloths, dipped into very hot, or very cold water, will usually effect a cure. Hot water (110-120° F.) is the best to use. At this temperature it is most effectual; it will probably be of greater purity than cold water, and there is less apt to be shock than when the cold application is used. A remedy easily obtainable, and often used as a styptic, is turpentine, but as a rule very hot water is best, except, of course, in those most serious cases already described, where it is necessary to apply pressure on the course of the vessels, in order to arrest the bleeding.

Bleeding from the stomach. Very often, in cases of gastric ulcer, the patient vomits blood. If this occurs

in large quantity it cannot be mistaken, but when the amount is smaller it has the appearance of coffee—we speak of it as “coffee grounds”—and those about the patient are apt not to look upon it as a symptom quite so serious as it actually is. Send immediately for the doctor, get the patient quietly into bed, and keep him lying on the back, and without any food, until the doctor comes. If it is available, an ice bag should be applied over the stomach, and small pieces may be given to the patient to suck.

Bleeding from the lungs. It is important that one should be able to distinguish whether bleeding is from the stomach, or from the lung. From the latter the blood is bright red in colour, with air bubbles in it, and often mixed with phlegm. The amount may vary from an occasional streak in the expectoration, to a rush great enough to kill the patient. Don't allow your patient to see that you are nervous, but act with decision, and do not lose any time in applying those remedies you will have at hand should the possibility of the occurrence of an attack like this have been recognised beforehand. Let the sick-room be cool, see that the clothing is loose, keep your patient calm and as still as possible, and again pieces of ice may be given, while an ice bag is applied over the chest. Guard against the recurrence of such attacks, from excitement, exertion, or the use of stimulants. In cases of hæmorrhage the latter should not be given, because they strengthen the heart-beat, so that the blood is made to flow with a greater force through the injured artery, and may drive out the blood clot, which otherwise might form, and so close up the wounded vessel. Indeed, the very faintness, which so often leads people to give alcohol in cases of hæmorrhage, may be a great factor in bringing about its arrest, because then the heart will be beating feebly, and, owing to the slow flow of blood through the vessel, the blood clot will have time to form.

Poisoning. In cases of poisoning the doctor must of course be sent for at once; and see that the messenger understands what has been taken, so that the doctor may bring the proper antidote with him. Usually something can be done before his arrival in the matter of getting the poisonous matter vomited. The usual emetic is a tablespoonful of mustard in a tumblerful of warm water. If mustard is not available, use the same quantity of salt instead. A glass of greasy water often readily causes vomiting. Such are the emetics usually at hand so far as home nursing is concerned, and, should they not take effect in fifteen minutes, they may be repeated a second, or even a third time. Unfortunately there are cases, as in sulphuric acid poisoning, where the poison is so much of an irritant that an emetic should not be given, because the mucous membrane of the stomach will have been injured by the poison. In **opium** poisoning it is very difficult to get the patient to vomit, and so he must be kept roused as much as possible until the doctor's arrival. Often this is a matter of great difficulty, but it must, at any cost, be persevered with. Keep on shaking him and shouting, and, if necessary, slap the body with wet towels. Sometimes the head can be held over a bath, while cold water is douched about neck and chest. Artificial respiration is required when respiratory movement has stopped, while the heart still continues to beat. Once the patient is thoroughly roused, and able for exertion, get people to keep him walking about, because, if allowed to drop asleep, all the treatment will have to be repeated.

Usually the administration of the necessary antidote is a matter not in the nurse's province, but there are cases where a simple remedy is available, and should be given, if the doctor's arrival is likely to be delayed.

TREATMENT IN SPECIAL CASES.

Aconite (Monkshood). Emetic. Treat collapse by keeping the patient in a recumbent position; surround him with hot bottles and blankets, tilt up the foot of the bed, give stimulants, and, if necessary, apply hot fomentations, or a mustard leaf over the heart.

Alcohol. Emetic. Keep the patient roused, apply cold cloths to the head, inject strong coffee into the bowel, and keep the patient warm.

Arsenic. Give emetics should there have been no vomiting. Carron oil, chalk and water, or magnesia may then be given.

Belladonna (Deadly nightshade). Emetic. Keep patient roused. Use stimulants and warmth. Artificial respiration may be required.

Carbolic acid. A tablespoonful of Epsom or Glauber's salts, in a whole tumblerful of warm water. If neither of these are available, chalk and water, or oil can be given instead. Emetics will be necessary later. Keep the patient warm, and otherwise treat collapse by raising the foot of the bed, rubbing the limbs in an upward direction, and by putting hot applications over the heart.

Chloral. Keep the patient roused as in opium poisoning. If there is collapse, surround him with hot blankets and bottles, apply mustard over the heart, and give strong, hot coffee to drink. Artificial respiration if necessary.

Croton oil. Emetics, and then large quantities of barley-water, gruel, arrowroot, or raw eggs to drink. Apply heat over the abdomen to relieve pain, and give brandy, or whisky, if depression is great.

Digitalis (Foxglove). Emetic, unless the drug itself has already caused vomiting. Keep the patient lying down, and treat collapse.

Hellebore. See opium.

Laburnum. Emetics. Stimulants. Treat collapse.

Laudanum. See opium.

Mushrooms. Emetic. Afterwards castor oil. Stimulation if necessary.

Nux vomica (Strychnine). Emetic immediately. Tannin. Artificial respiration may become necessary.

Oxalic acid. Give chalk or plaster in water. White drawing chalk, chalk tooth-powder, or plaster scraped from the wall, will do. Avoid ammonia, soda, or potash. Treat collapse, and give castor oil.

Phosphorus (Rat or beetle paste, matches). Emetic. White of egg. Magnesia. Treat prostration if necessary. Don't give oils, as those will dissolve the poison and cause it to be absorbed.

Prussic acid. If there is time give emetics. Pour cold water over head and spine. Stimulants if there is power to swallow. Artificial respiration.

Salts of lemon. See oxalic acid.

Strychnine. See nux vomica.

Tainted meat. Give emetic or castor oil. Hot application if pain severe. Treat prostration.

Zinc. Give plenty of water with soda in it, then raw eggs and milk.

Drowning. In cases of drowning, but also in occasional poisoning accidents and suffocation, artificial respiration is necessary if the patient is to be given a chance of life, and, in such cases, no time must be lost in commencing the treatment likely to bring about recovery. Clear the mouth quickly of weeds and mud, because, if particles of those get drawn back into the air passages, serious results may follow. To get rid of the water from the lungs, lay the patient round over a large roll of clothing, pull up the arms, and place a pad under the forehead; then press down on the back firmly, but quite gently, once or twice, to squeeze the water from the lungs. Once more turn him round on the back, see that the clothing is not in any way constricting, and tie out the tongue. Should

the patient chance to lie on a table, that should be raised at the foot, while his head hangs over the upper end; but usually in drowning accidents his position is on the ground, with a roll of clothing placed under the chest to expand that; his chin should project forward, while his forehead should be back. Then commence operations by, as far as possible, imitating the chest movements during an inspiration. Grasp the arms above the elbow, with the back of your hands towards the patient's chest, and sweep his arms round above his head, making his two hands meet. Keep the arms in this position for two seconds, and then bring them down again on the side walls of the chest, and towards the front. Press them firmly down on the chest, so compressing it, and imitating its movements in an expiration. Continue these movements of respiration for an hour, or an hour and a half, after the patient seems quite dead, and you may see signs of vitality returning. One person may not be able to go on for a lengthened interval, but several people can take it in turn. Meanwhile, if possible, wet garments should be cut off, while the body is covered with blankets. The lower limbs, under these, should be rubbed in an upward direction to induce warmth. If respiration returns, small quantities of brandy and warm water should be given with a teaspoon as soon as the patient can swallow. Strong hot coffee may come later. Keep the patient warm, and in bed, for some days, after an accident like this, to avoid lung complications as far as possible.

Fainting. In fainting, the heart's action is suspended, and consequently there is an insufficient supply of blood to the brain. This may be due to some disturbed condition in the health of the body, to the breathing of impure air, or, it may be, to some sudden sensation of pain, grief, joy, or fear. The patient suffers from a feeling of weakness, giddi-

ness, and often of sickness, he cannot see well, and has singing in the ears before he more completely loses consciousness, and falls down. He appears very pale, his breathing is feeble and irregular, his pulse imperceptible, or nearly so. Never raise anyone in this condition to an upright position, or you may bring about fatal results, by causing the feebly beating heart to stop completely. Lay the body in a recumbent position. Probably the individual has fallen on the floor, and then he should be allowed to remain there. If he has fainted while sitting, lay him gently down on the floor. Should the attack have occurred where there are numbers of people, don't allow them to crowd round the patient, but send them to open windows, for the admission of an increased supply of fresh air. Loosen any tight garment which the patient wears, and apply cold cloths to the head. If the attack prove obstinate, raise the lower limbs to a higher level than the upper part of the body. As soon as the patient is able to swallow, give alcohol in water, or half a teaspoonful or more of sal volatile. Keep the patient lying quiet for some time after he has recovered, to avoid any recurrence of the attack.

Convulsions. Convulsions frequently occur while children are teething; they may arise from gastric disturbances, sometimes they occur at the onset of some disease, or during whooping-cough. Usually a convulsive seizure comes on suddenly, or it may be preceded by restlessness, starting during sleep, and twitching of the muscles. With the commencement of the attack the child becomes stiff, the legs and arms are straight and fixed, the head is thrown backwards, and the hands clenched. Soon the face is flushed, the muscles there and those of the body, twitch, and the eyes roll upwards and become fixed. There is loss of consciousness, and the fit lasts for a few minutes; after it the child usually falls asleep.

Get the patient into a hot bath about 100° F., with a tablespoonful of mustard added to it, and apply cold cloths to the head. The child should remain in the bath for at least five minutes, and when taken from it should be wrapped up in warm blankets. If sufficient hot water is not available for an ordinary bath, then a hot mustard foot-bath may be used, with cold applications to the head. Should the fit occur again, the treatment must be repeated. If the attack is believed to be due to indigestion, an emetic should be given as soon as the child can swallow. Ipecacuanha wine makes a good one in a case like this. The doctor, when he arrives, will prescribe what further treatment may be necessary, but it is the part of those who are caring for the child, to see that there be no unnecessary risk of recurrence from careless dieting, or from neglect in regard to the condition of the bowels, because when these attacks are repeated brain development may be interfered with.

Epileptic seizures. These occur, as a rule, without warning, but should it chance that there are preliminary symptoms, the patient can be put in a safe position. Usually he cries out, and then falls down suddenly. The muscles twitch, the features become distorted, the face is pale, but gradually becomes livid, there is frothing at the mouth, and the pupils become more and more dilated. Then the muscles begin to relax, and very soon the patient is asleep.

If possible get your patient into a safe position before he can fall; loosen any tight clothing, and quickly put something between the teeth to prevent him from biting the tongue. Guard against the repetition of such an attack by careful regulation of the diet, by attention to the condition of the bowels, and by keeping the patient as much in the open air as possible.

One must be quick to observe everything possible in the patient's condition during the attack, as the

doctor is rarely on the spot to observe for himself, and therefore he is largely dependent upon the report given him by those who have witnessed it. Observe on which side of the body the twitching is first visible, whether the onset of the fit is sudden, or fairly gradual; observe the condition of the pupils, whether the face is livid or red, whether the patient passes urine during the attack, whether consciousness is entirely lost, and exactly how long the fit lasts.

Croup. This very often requires treatment before the doctor can be brought to prescribe. Breathing is difficult, the face becomes livid, and the lips blue, while the eyes are often prominent; the patient is evidently in great distress, the cough is hard and croaking, and accompanied by expectoration. Usually there is fever, and the patient is apt to be worse towards night. Difficult breathing, by rapidly becoming worse, may give reason for the greatest alarm. Give half a teaspoonful of ipecacuanha wine occasionally to induce vomiting, and so bring up mucus from the larynx. Sometimes vomiting, in urgent cases, can be brought about by placing the finger in the throat. Apply a sponge wrung in hot water, or hot cloths over the throat. If a bronchitis kettle is not available, get an ordinary kettle, and, making a funnel of stiff paper, fix this to the spout, placing it in such a position that the steam will be directed towards the top of the bed, to be breathed by the patient. An ordinary draught screen can be placed round the top of the bed, with a sheet laid above it to form a tent, or sheets may be pinned over, and around an ordinary clothes-horse.

Insect stings. Those, beyond the pain inflicted at the moment, usually cause little lasting harm, except when the stings happen to be numerous, or are inflicted in the mouth, or throat, by swallowing the insect concealed in fruit. If a bee chanced to be the offender, the sting can often be pressed out with a watch key,

but a wasp does not leave its sting behind, only a very irritating poison. Some alkali should be used to counteract this, such as dilute ammonia, or soda, and there are many other popular remedies for the cure of wasp-stings. Where the injury is in the mouth or throat, send for the doctor without delay, and meanwhile the throat may be gargled with salt and water, or boracic lotion, and painted with boroglycerine, if that is at hand.

CHAPTER X.

CARE AND DRESSING OF WOUNDS, ETC.

IN relation to the dressing of wounds, the great point always to be borne in mind is the necessity for absolute cleanliness. By cleanliness, in this matter, is meant more than the ordinary significance of the word. In surgical cleanliness we try to keep the wound free, not only from visible dirt, but from invisible dirt as well—from all the minute germs, or microbes, which, on gaining entrance to a wound, are liable greatly to retard its healing. Those germs are minute, vegetable growths, only visible when greatly magnified. They are present everywhere—on the skin and clothing, no matter how clean these may to all appearances be, in water, in food, in the nose, throat, ear, and intestine—everywhere. They possess great powers of reproduction, so that sometimes one, on gaining entrance to a wound, will produce many thousands of the same kind, giving rise to conditions more or less serious, according to their species, and the state of health in which the individual is at the time.

Germs, on reaching the surface of raw meat, tend to cause putrefaction; and just in the same way, when they reach the raw surface of a wound, they give rise to ulceration there, thus greatly prolonging the time required for healing, if indeed they do not give rise to results still more serious. Thus if, as far as is possible in home nursing, we endeavour to keep wounds free

from such impurities, great risks will be avoided, and recovery will always be hastened. Attention to cleanliness does far more to bring about the healing of wounds than any applications can. Outside our hospitals very few people realise the all-important place that absolute cleanliness has in the healing of wounds.

Antiseptics. Among the antiseptics, or purifying agents, carbolic lotion is one very generally used. In home nursing, however, as a dressing, it must be applied with discretion, and, as a rule, only with a doctor's orders, so far as the injury itself is concerned. It is very useful, in the proportion of 1 part of carbolic in 20 parts of water, for disinfecting basins, instruments, mackintoshes, etc. For most dressings a weaker lotion is used; an equal quantity of boiled water may be added to this 1-20 solution, so bringing it to the proportion of 1 part carbolic in 40 parts of water. Sometimes, particularly in cases where the patient happens to be a child, it is used in the proportion of 1 part in 60, 1 part in 80, or, it may sometimes be, at the strength of 1 part in 100 parts of water.

Lysol is greatly used as an antiseptic, a small quantity being added to the water in which the hands, basins, or instruments are washed.

Boracic lotion is very useful in home nursing, and, to prepare it, get boracic acid crystals, and not boracic powder, or borax, as at times we find people doing. Dissolve 1 part of boracic acid in 30 parts of water which has reached boiling point. In preparing this lotion see that the bottles used are thoroughly clean, and that they have well-fitting stoppers, or corks. When doing a dressing, add an equal quantity of boiling water to the lotion so made. Boracic lotion is one which can be used with safety for any dressing, as it is non-irritating, and non-poisonous.

A lotion easily procurable for cleansing wounds in

home nursing is salt solution. To prepare it put a teaspoonful of salt into a pint of boiling water. The ordinary kitchen salt is the best to use, because some of the others have arrowroot added to them to avoid dampness.

Note that any water used in dressing wounds must always have reached boiling point, so that impurities contained will be destroyed.

The materials used for dressing a wound ought to be kept rolled up in a fresh, clean towel, inside a clean box, with a tightly fitting lid. An old tin biscuit box, thoroughly washed in lysol, serves the purpose very well.

Before commencing to dress the wound, see that everything, which you may require, is at hand, and then have your own hands thoroughly washed, brushed, and disinfected, paying very particular attention to the nails. Lysol can be put into the water in which you wash them, or, after thorough cleansing, they may be rinsed in carbolic lotion 1-20. A little glycerine added to this will prevent the skin from becoming rough and cracked. Any scissors, or instruments to be used during the dressing, must be previously boiled, and kept in lysol, or carbolic, until they are required.

Spread a mackintosh with a clean towel under the part to be dressed. People, in commencing to dress a wound, almost invariably give no thought to the skin surface surrounding it. This ought always to be attended to first, a piece of lint or cotton, dipped into the lotion prepared for the dressing, can be laid over the raw surface while you do it. Before the first dressing, the surrounding skin must be washed with soap and water, but don't allow this to come in contact with the raw surface. Afterwards it will be sufficient to cleanse the skin with the lotion used for the dressing. Cut away any hair in the neighbourhood of the wound, and if this chance to be on the scalp,

then the hair should be shaved over a considerable area, perhaps an inch and a half, round the wound. The wound itself must next be cleansed with small pads of cotton wool, which have been placed in readiness, in a basin containing warm boracic lotion or salt solution. Those little pads are just small pieces torn from the ordinary cotton wool, and measuring about an inch in diameter, and, by compressing them between the fingers and thumb, you run the lotion from them over the wounded area. It may be necessary to touch away foreign matter, such as sand or dust, by means of these small pads. None of them should be used a second time, but place each piece of wool, as you finish using it, on a piece of paper provided to hold the soiled dressings. In this they can be rolled up and burned immediately the dressing is over. Should it become necessary to leave the patient before finishing the dressing, cover up the wound with wool, lint, or gauze, and thoroughly cleanse the hands again before proceeding with the dressing.

Small superficial wounds are of course easily managed. After cleansing, a piece of old linen or lint can be applied, and very soon the edges are seen to be united. For wounds that have had dirt rubbed into their surface, or which have been inflicted by some rusty, or otherwise poisonous instrument, a more cleansing dressing will be required. Soak a piece of boracic lint in warm boracic lotion, and, after cleansing the wound, lay this over it with the smooth surface next to the wound. Above this put a piece of jaconette, or gutta-percha tissue larger considerably than the lint, then a layer of cotton wool, and keep the whole in place with a bandage. Change the dressing morning and night.

Ulcers. An ulcer is a raw, discharging surface such as is seen in a bed-sore, or it may result from a burn, from a lacerated, bruised wound, or from some other cause. The first aim, in nursing a wound like this,

ought to be to get the wound clean and free from the discharge which collects, more or less, on its surface. After cleansing the wound as far as is possible by douching it with small pads of cotton wool dipped in salt solution or boracic lotion, apply a piece of boracic lint, cut to the size of the ulcer, so that it will reach to its margins and yet not overlap. Over the lint put a piece of gutta-percha tissue, at least half an inch larger than the lint all round, and above this place a piece of cotton wool, and a bandage. If the margins of the ulcer are thick, as described above, make a little pad of cotton wool rather larger than the ulcer, and place this above the dressing, before applying the bandage which keeps the whole in position. Change this boracic dressing, which is applied largely with the idea of cleansing the wound, night and morning. Still more efficacious in cleansing a dirty, discharging surface like this is a starch poultice, changed night and morning, or, if the wound be very dirty, every four hours. For directions see chapter on poultices.

Occasional changes in the kind of dressing being used, greatly tend at times to hasten recovery in the case of an ulcer. One of red lotion is usually found to be very good. Procure some green protective, and tear it into strips. If not already perforated, make small holes in those strips, at intervals of about half an inch. Sometimes tinfoil, like that used for wrapping chocolate in, is used instead of the protective. Both should be disinfected by dipping them into carbolic lotion, and then they are put into the red lotion along with a piece of boracic lint, cut exactly to the size of the wound. Lay the strips of green protective, or the tinfoil, all round the healing edge of the ulcer and then apply the boracic lint saturated in the red lotion. Above this, place a piece of gutta-percha tissue, larger than the lint, then a layer of cotton wool, and keep the whole in place by means, of a bandage. This makes a very stimulating

dressings, and, provided all cleanliness be observed in applying it, the ulcer often improves rapidly. Like all other dressings, in cases of ulcer it must be changed night and morning. Sometimes the ulcer can be dressed with some ointment spread on the smooth side of white surgeon's lint, and applied. Ichthyol ointment is one which often gives satisfactory results, particularly in the case of a deep, troublesome bed-sore. Five per cent. ammoniated mercury ointment is another, or a combination of three different ointments may be used—equal parts of boracic ointment, lanoline, and plain vaseline; change night and morning. Sometimes one dressing appears to suit the ulcer better than any other, and then this ought to be the one most generally used for it. In the case of a varicose ulcer of the leg, see that the limb is kept as much as possible at rest, and usually it is raised on a pillow placed lengthwise under the limb.

Abscess. An abscess is a collection of pus or matter in the tissues, and the symptoms of one are redness, swelling, heat, tenderness, and pain. There is another, symptom called fluctuation, which you can sometimes observe. At the margin of the swelling, place lightly the tips of the fingers of the left hand, and then gently tap all over the swelling and round it with those of the right. Very often the movement, produced by this in the fluid inside the tissues, can be felt by the fingers of the left hand. An abscess is often treated with a hot carbolic poultice. To make this, add to 1-20 carbolic lotion an equal quantity of boiled water, saturate lint in this, and apply it under jaconette, or gutta-percha tissue, over the affected part. In cases where you fear that the patient is suffering from an abscess, however, the doctor should be called in at once, because if treated by the friends at home, it often gets into such a condition, that recovery is very greatly retarded. He will drain off the pus,

and there will not be anything like the same loss of strength for the patient, that is apt to result when an abscess is more or less left to itself.

Whitlow. This advice applies also to whitlow, an inflammation which we occasionally find attacking the fingers. Until the doctor sees it, this should be treated with a carbolic poultice as above. The piece of gutta-percha tissue used to keep the lint moist, can be more easily kept in position if, before applying the bandage, you strike a match, and run the loose margin of the gutta-percha tissue wrapped round the finger, through the flame. This causes the edge of the tissue to become of a sticky consistency, and, when pressed down, it adheres to the part wrapped round the finger.

A boil is just a small abscess on the skin. Saturate a very small piece of boracic lint in ordinary boracic lotion. Put above this, gutta-percha tissue cut a little larger than itself, then a scrap of cotton wool, and keep the whole in position by narrow strips of adhesive plaster. The extremities of this adhere to the skin beyond the dressing, and if there is difficulty in getting them to stick, the back of the plaster should be held against a hot jar, or a jug containing hot water, and then it will adhere more readily and securely to the surface of the skin surrounding the dressing. Usually it requires about four narrow strips of the plaster, about a sixth of an inch wide, to keep the dressing fixed.

A carbuncle is a collection of boils, and the different little points break, and run into each other. There is a dirty, yellow discharge. In home nursing those are treated, usually, by boracic poultices as above, but it is wisest to call the doctor in for an ailment like this, and he will touch it with pure carbolic, or do something calculated to hasten recovery. In such cases the nurse must see that the patient has no stimulants, but a very nourishing diet, because often in ailments like this the strength is much reduced.

Burns. Those are of great importance from the frequency of their occurrence, and from the danger which often attends such injuries. Everyone, I think, understands how first aid must be rendered in a case of burning—wrap the patient up quickly in a thick rug or blanket to extinguish the flames. Always, in severe cases of burning, the state of shock, or collapse, in which you find the patient, must be attended to first (see chapter on emergency work), and in such circumstances send at once for a doctor. Meanwhile, until he comes, raise up the foot of the patient's bed, add more blankets, surround him with hot jars, or, if those cannot be procured, hot bricks or hot irons will do, and keep the sick-room very warm. Sometimes it is wise, in bad cases, to apply a hot fomentation, or a mustard leaf, over the heart, and should the lower limbs be uninjured, those should be rubbed in an upward direction. Sips of brandy or whisky, in hot water, can be given until the doctor comes if the patient can be got to swallow it, and sometimes, in bad cases, warm, strong coffee is injected into the bowel. In such severe cases of burning the injuries can wait for the doctor's arrival, but they should be covered up gently, and loosely, until he comes, with lint and thick soft sheets of cotton wool, or, if that is not available, by clean, soft, old linen laid lightly and quickly round them. In smaller burns, the dressing is usually done by those who are in the home. Lay a soft piece of cotton wool over the injury, until you prepare the necessary dressings. A little soap and water will be required for the skin surrounding the burn, and equal parts of boracic lotion and boiled water to cleanse the injury itself. Boil the scissors to be used, in a saucepan with a little water. Picric is the best dressing to use for the burn, and, for home nursing, it is best to use it in the form of an ointment. White lint will be required upon which to spread this, and some cotton wool. See

that your own hands are thoroughly clean, and when everything is ready, and the skin of the patient cleansed, bathe the burnt surface with boracic lotion. A burn, however, as a rule, requires little cleansing, and the sooner you get it covered up the better. Hold a piece of cotton wool under each blister at the part where the fluid most collects in it, and cut the blister with your scissors at this point, allowing the fluid to escape into the cotton wool. There is always much controversy as to whether or not those blisters should be cut, but everything in regard to this depends upon whether the wound is to be kept quite clean, and a suitable dressing used. In those circumstances, it is better to cut them, but in cases where cleanliness is not assured, or where carron oil is the dressing to be applied, it is wisest to leave them uncut. When picric is to be the dressing applied, the blister should be cut, as described above, and any dead epidermis or skin should be cut away. Then the picric ointment is spread on the smooth side of white surgeon's lint and applied. For larger burns, picric lotion is more often used than the ointment, but, as it is very highly inflammable, it is scarcely so much to be advised for use in ordinary home nursing. In using this lotion, strips of sterilised gauze are saturated in the lotion and laid loosely over the burnt surface. A thin layer of wool is laid over this, and the whole is kept in place by means of a bandage. This dressing will soon grow dry, but that does not matter greatly; only see that it is thoroughly saturated, either with picric or boracic lotion when the time comes to remove it, because a dressing must never be dragged from a wound. Usually we change this dressing for the first time at the end of the second day, and again after three or four days, unless there chance to be any rise in the patient's temperature before then. Picric is a much better dressing for a burn than any other, because it is an antiseptic—it has the power to

destroy harmful germs which may have reached the wound—it lessens the amount of pain in the burnt surface, and, when it is used, the dressing need not be frequently changed; the less you expose a burn to the air the better. Carron oil is not a wise dressing to use for an injury like this, because not only will it fail to have any purifying effect on the wound, but actually within itself it contains impurity, so that it is sure to retard, rather than encourage, healing where there is raw surface. It makes quite a good dressing in those cases where the skin remains unbroken, however, because there is ready evaporation from it, and this carries away much heat from the burnt surface. In regard to burns, as is the case in all other wounds, recovery depends largely upon the observance of all the rules of cleanliness.

Eye dressings. To bathe the eye, make the patient lie down, remove the pillow from under the head, and the chin should be upwards. He ought to lie rather towards the opposite side to that of the injured eye. The lotion used for bathing should be weak boracic—rather more than an equal quantity of boiled water in boracic lotion—or weak salt solution. Put small pads of cotton wool into this, and make the patient hold a large pad of wool, just below the inner corner of the eye, to catch the lotion passed over it. Then, with the fingers of the left hand, separate the two lids, and, taking each little pad in turn, by squeezing it between the points of the fingers of the right hand drop the lotion from it so that it will run over the eye. It is well to have the wool so pulled out that there is a little point or tail at the end of each pad, and from this the lotion will drop evenly and gently into the eye. Let the pad be held near to the eye, so that the lotion will fall into it gently, and not with a splash. The same pad should never be used a second time, but each, as it is used, is laid on a piece of thick paper to be burned immediately the dressing is over. Be very

careful, before commencing to bathe the eye, that the hands are properly cleansed, and where the eyes of several patients require to be dressed, the hands must be washed between each.

Ointments are used for the eye as applications for the conjunctiva, the cornea, or the margins of the eyelids. When either of the two former are to be dressed, a camel-hair brush (its hairs previously dipped into water at boiling point), or a clean glass rod, rounded at both ends, is used. One or other of those is dipped into the ointment ordered, then the lower lid is pulled down, and the ointment is laid along that, from the outside corner inwards.

Next the eye is closed, and you lightly massage round the lids with the point of the third finger. When the ointment is prescribed for the edges of the eyelids, see that the eye is carefully bathed and cleansed first, and get rid of any scabs or scales adhering to the margins of the lids. Then make the patient close the eyes lightly, and putting a little ointment on the point of the third finger, gently rub it for a little along the margins of the lids. When this is done, rub away any superfluous ointment from the eyelids themselves, by means of a little pad of cotton wool.

When powder is ordered, it is, in home nursing, usually flicked into the eye with a camel-hair brush. All eye dressings should be done two hours before going to bed, because, sometimes after them the eye secretions are increased, and were the dressing done the last thing at night, those secretions might be retained in the eye all night, so that the effect of the dressing would probably be rather harmful than otherwise.

When drops are put into the eye, the combined drop-glass and bottle is the best thing to use. Before putting the drops into the eye, allow a few to escape, so that particles of solid matter, which may have

collected at the point of the dropper, may not be passed into the eye.

Compresses are made of gamgee tissue, or several layers of lint or gauze. Sometimes they are applied dry and sometimes wet. When a dry hot compress is ordered, change it whenever it grows cold, but in the case of an ordinary dry protecting compress change twice daily. A wet compress may be hot or cold. To prepare a cold wet compress put some cold water into a clean bowl, with pieces of ice. Place three square, folded pieces of lint in this, and place one over the eye, the lids being closed. When this grows cold exchange it for another piece, putting the hot piece back into the water to cool. Keep on changing those cold compresses for nearly half an hour. To make a hot compress, put hot water into a basin, and apply the squares in turn, as hot as the patient can bear them. Sometimes instead of this you are told to put on a thicker pad, soaked in hot water, with gutta-percha tissue, or oiled silk above it, then a layer of cotton wool and a bandage. Be very careful, in regard to these applications, not to put too much pressure on the eye.

Suffusions of blood on the conjunctiva sometimes give rise to alarm, but they are not really dangerous. Occasionally a cold wet compress is ordered in these cases.

A particle may get into the eye, causing the greatest discomfort and pain. If it cannot be seen you may be pretty sure that it is under the upper lid, and, to reach it this must be everted. Lay a small pencil, the handle of a little steel crochet hook, or a match, along the upper lid, then grasp the eyelash and turn the lid back, over the pencil. Usually the particle is then visible, and can be touched away with a soft handkerchief.

When lime gets into the eye great care is necessary in dealing with the matter. Upon no account com-

mence to wash away the lime with water, because that will dissolve it and cause it to burn the tissues of the eyeball. Evert the lid as you would to remove a particle from the eye, and touch away every particle of the lime or mortar with a dry pad of cotton wool. Then bathe the eye with a strong solution of sugar and water, or drop in a little olive oil. Of course, when such an accident occurs the doctor must be called in immediately, as serious complications sometimes result.

Swabbing the throat. This is often done with an ordinary camel-hair brush, but a cotton-wool swab is better. A sponge holder can be had in which to place this pad, but, as a rule in home nursing, the wool is securely wrapped round the unsharpened end of a long pencil. Dip the end of the pencil in a little water, and then lay it on the margin of a flattened piece of cotton wool. Wrap the cotton wool round it so securely as to make sure that there is no fear of its slipping. Have your patient so placed that the light will fall on the back of the throat, and then, with an old teaspoon bent in the middle to form a right angle, depress the tongue. You hold the bowl of the spoon in the hand, and depress the tongue with its handle. Then be very quick in getting in the throat swab, and brushing it quickly over the part. Each swab must be burnt immediately it has been used. In those cases where you cannot hold the mouth open, wrap a piece of lint round the finger, and swab the throat with that.

When a spray is ordered for the throat, in order that it may not simply be sprayed over the tongue, this ought to be depressed as above, and when the ball of the spray is compressed the patient should draw in the breath.

Syringing the ear. For this use warm water, and a perfectly clean glass syringe, and the process must be most carefully carried out. Have your patient

so placed that the light will fall on the ear, and tuck a towel over the neck of the dress, or nightdress. Next get a shallow dish, preferably kidney-shaped, and hold it close to the neck under the ear. Then

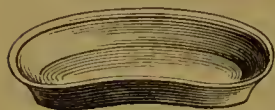


FIG. 9.—Kidney basin.

fill the syringe with lotion, and, holding the point upwards expel all air, so that it may be filled with lotion alone. Grasp the ear in the hand, and hold it in an upward direction, passing the fluid along the upper wall of the ear passage. The fluid must be passed into the ear slowly and gently to avoid risk of injury to the ear.

When putting drops into the ear get the patient to rest the elbow on the knee, and then to place the ear, which is not to have the drops, on the palm of the hand. The drops of warm oil, or whatever you have been told to administer, can then be introduced from a teaspoon, or a small piece of wool saturated in the oil.

Preparing for an operation in a private house. I think that it is almost unnecessary, in a book on home nursing, to say anything on this subject at all, because it is only in rare cases that those in the home are called upon to think of the necessary arrangements for an operation there. There are a few things, however, that you might upon some occasion require to attend to, and those I shall mention, omitting the duties that would only be expected of a trained nurse, brought to the house to see to the necessary preparations, and to do the after nursing.

Before an operation the room should always be very thoroughly cleansed, so that, when possible, it is just as well to choose a different room from that which the patient has been occupying. Another advantage of this arrangement is that the patient does not see the preparations being made. Choose a room which is quiet, and one with a good light. It ought

to have an open fireplace, and it is well if the chimney can be swept a day or two before, to avoid chances of smoke. It is important to have a room which is capable of being well ventilated, and you should see that its windows are kept well open for some days before the operation. Indeed, the ventilation of the whole house ought to receive special attention. Curtains and hangings ought to be removed from the room. Freshly washed curtains can, with little difficulty, be put up again sometime when, after the operation is over, they can be arranged without disturbing the patient. The carpet in the room should be lifted before the day of the operation, and superfluous furniture and ornaments ought to be removed. Pictures should be taken down and dusted, and after the walls have been rubbed, hung up again in their places. The furniture remaining in the room should be gone over thoroughly with a cloth wrung occasionally in water which has lysol added to it. All the woodwork in the room and the boards of the floor must be well scrubbed. If, however, the operation be one of sudden emergency which must be performed immediately, it is wisest to leave carpet, furniture and hangings undisturbed, otherwise dust might be added to the atmosphere, which could not be got rid of quickly enough.

See that the windows in the room are clean, and, if they look into the street, place a small curtain of white muslin across the lower halves of those.

For the operating table a strong, wooden table is chosen which can be relied upon to remain perfectly steady. This must be very thoroughly scrubbed with hot water and plenty of soap, and, when dry, it is well rubbed with 1-20 carbolic. It should be about 3 feet high, 5 to 6 feet long and about 2 feet broad. It is often impossible to procure a table long enough, and then two smaller tables of equal height are placed end to end and securely tied together. Fresh, clean

blankets will be required for the table, a pillow covered with a fresh pillow case, and a hot bottle encased in a clean, flannel bag. Three or four smaller tables, well cleansed, will also be required.

Collect beforehand a plentiful supply of basins and large towels, several ewers, a large pail, a pail to hold soiled lotion and one for soiled dressings. Those must be all thoroughly washed in lysol and hot water. Basins, soap, and nail brushes must be provided for the hands of the surgeon and those who assist him. See that you have a plentiful supply of clean towels and clean linen freshly aired for the bed. Be sure that its blankets are clean, and choose a comfortable mattress and, if possible, the one which has been the least regularly in use. The fire in the room should be lit sometime before the operation, as the surgeon likes the room to be quite warm. The windows need not be entirely closed until he is ready. Sometimes you are told to procure two footstools which are strong and fairly high, or two low, strong chairs, in case they may be required to place under the foot of the bed. Fill several hot jars in readiness to put into the bed, and have extra blankets at hand. See that you have a plentiful supply of hot water ready boiling before the hour fixed for the surgeon's arrival, because he usually comes very punctually.

See that the patient gets all the sleep possible for some time before the date fixed for the operation. His food should be nourishing and light. The doctor will give directions as to diet for the day of the operation and that preceding it, and all his instructions regarding this, and any medicine to be given, must be carefully carried out. The patient has a hot bath on the night before the operation, or, if too ill for this, the body is sponged between blankets. Remember that the skin is a happy hunting ground for microbes, so that there must be plenty of soap and rubbing used, especially over, and in the neighbour-

hood of, the part to be operated upon. The hair in female patients should be plaited down each side. The patient gets on a warm, fresh gown and, unless the lower limbs are to be operated upon, warm, clean stockings before the operation. He must be kept very comfortable and warm before, as well as after, it is over. If the patient chance to have false teeth they must be taken out before the operation.

CHAPTER XI.

NURSING IN CASES OF INFECTIOUS DISEASE.

THERE is no kind of disease that requires more intelligent, or more careful and conscientious nursing, than fever cases do. In all cases of infectious disease one must bear in mind how easy it may be to convey the disease to the healthy, and what serious responsibilities rest with the nurse in regard to this point. Those diseases are due to minute germs given off from the body. It may be that they are present in the breath of the patient, as in the case of those suffering from consumption, diphtheria, or measles; they may be given off from the skin in the later stages of scarlet fever, and they are present in the motions of those attacked by typhoid fever, or cholera. It must be remembered that those germs are minute living growths, only visible when very much magnified, yet possessing a wonderful power to produce many hundreds more of their own species. On reaching the tissues of the body they are liable to produce disease more or less severe, according to the peculiarities of the individual, his conditions of life, and his state of health when the germ gains entrance into his system.

You hear disease spoken of as being conveyed by "contagion," or by "infection." The latter is the better and more general term, because it includes all the ways in which a disease may spread among indi-

viduals. Smallpox and scarlet fever are infectious diseases. Contagion implies that the disease is only conveyed by personal contact with the patient. Diphtheria is a contagious disease.

We speak of various stages or periods in the course of an infectious disease. During *the incubation period* nothing appears to be happening, and indeed the patient seems perfectly well, but nevertheless the poison, which has entered the body is developing. Next comes that stage of the disease known as *invasion*—the symptoms of the disease begin to appear—high temperature, shivering, vomiting, sore throat, rash, or whatever these may be. Then comes the period of *decline*; the symptoms of high temperature and illness begin to pass off, and after that follows *convalescence*.

The first thing that one thinks of when one believes that a patient is suffering from an infectious disease is to isolate him completely—remove such a patient from contact with all except those who are nursing. In some cases of infectious disease the patient does not feel very ill; the symptoms are very unpronounced, and one is apt not to realise, until the appearance of a rash, that anything more than some slight, gastric disturbance is the matter. As soon, however, as there is the slightest suspicion that the patient is suffering from an infectious disease, the medical man ought to be called in. Perhaps a rigor or shivering fit, may usher it in, and then the temperature is found to be raised. If the patient is to be nursed in the home, see that the sick-room is in the most secluded part of the house. Indeed, if possible, the whole of that floor should be free from any occupants besides the patient and those who are nursing. The latter ought to avoid all unnecessary intercourse with the other members of the house. The room must be stripped of all superfluous furniture. Take away all carpets and hangings of any kind which may absorb and retain infection.

Cupboards, drawers, and wardrobes should be emptied of everything but what is likely to be required by the patient during the illness, and keep out all books except those which are not of great value and can be destroyed. Wooden chairs ought to be substituted for those upholstered in any fabric likely to absorb germs. The eating utensils in the sick-room ought to be kept exclusively for the patient's use, and should not be sent down stairs, but should be washed in the sick-room. All remains of food should be destroyed there. The most common infectious diseases in this country at the present day are typhoid, scarlet fever, mumps, diphtheria, chickenpox, whooping-cough, erysipelas, and tuberculosis.

Typhoid is spread almost entirely by means of the motions of the individual whom it has attacked. When first those are discharged they do not contain the germ in any very active state. When they stand, however, and consequently decompose, they become very potent for evil, spreading infection into the air and sometimes into water and food. Hence the necessity for adding some disinfectant to the motion as soon as it is passed, covering it immediately with a towel rung also in some disinfectant, and for removing it *immediately* from the sick-room. Chloride of lime (1 part in 50 of water) is a good disinfectant to use, or izal (1 in 100). Either of those may with advantage be put into the bed-pan before it is inserted under the patient. If the motions must be kept for the doctor to see, keep it closely covered. If this is not so, empty it at once. Sometimes oysters are the means of spreading this disease, simply because so many towns discharge their sewage into the sea.

Typhoid demands more careful nursing than any other kind of fever, more especially during the second week of the disease. Keep your patient very quiet and lying on the back. Impress upon him, if he is sensible, the danger of trying to sit up, or, indeed, of

any sudden movement. Two people ought always to make the bed, in order that there may be a minimum of exertion caused to the invalid.

Guard very carefully against bed-sores in nursing a case of typhoid fever. With proper care those should not occur, but when they do you ought to report them, because, in cases where you have used every means of prevention, their occurrence is to be looked upon as a bad sign.

If your patient shows any tendency to delirium, never leave him for a moment. The nurse must, in a case of typhoid, always carefully inspect the motions for any appearance of blood, because this must at once be reported to the doctor, and, until you have had an opportunity of telling him, stop any stimulant, or beef tea, which the patient may have been getting. If you are told to apply an icebag in such a case, see that it is not filled so full as to be heavy. Notice the appearance of the motions in general. There may be constipation, but usually there is diarrhoea, and the motions are in appearance like pea soup—of a dull yellowish colour. Perfect cleanliness is very essential in nursing typhoid, and after the bowels have acted the nurse should see that, after sponging the patient, she thoroughly washes and disinfects her own hands. It is not enough just to dip them into some disinfecting fluid; they must be thoroughly washed and brushed with soap and water as well. She must remember to do this also before taking a meal.

In cases of typhoid it is important that the patient should have plenty of sleep, so that those who are nursing must do what lies in their power to promote this. Don't, as a rule, wake the patient for food, but at the same time do not mistake a condition of stupor for sleep, because then the patient must be roused so far as is possible and fed.

In cases where the temperature is very high the doctor may order cold sponging, and directions for

this are given elsewhere. Of course those caring for the patient never give this treatment without being told to by the doctor who is in attendance. Tepid sponging with warm water to which a little vinegar has been added is often most comforting to a typhoid patient. This is usually done twice a day, very gently and carefully, in order to keep the skin active, and the nurse must avoid all risks of chill, or over exertion, to the invalid. At no time, in nursing a bad case of typhoid fever, allow a weight of bedclothes to rest on the patient. A pillow placed on either side of the body will prevent this if you do not happen to have one of the wire "cages" made for the purpose.

The teeth in typhoid are covered with traces of food and secretions from the mouth, which have a very unpleasant odour. Be very careful to do what you can to keep the patient's mouth clean. The small pieces of rag, which are dipped into the mouth-wash, and then used for this purpose, must be burned at once. The tongue, and lips, are painted with a little boroglycerine to keep them moist.

Be very observant of the patient in every way. Notice, for instance, the relation of the pulse to the temperature. Notice each day the appearance of the abdomen. Usually there is swelling here and rash. The latter comes out in small, pale pink patches, very slightly elevated. Look out for the appearance of these, and when you see spots which are not very pronounced in character, but yet may be this rash typical of the fever, draw a pencil line round the suspicious patch, because otherwise, if it be very faint, you may not be able to find it again when you wish to show it to the doctor.

The feeding of a typhoid patient requires much care and consideration, and, in connection with this, those who are nursing should always bear in mind the condition of the intestine during this fever. The inner lining of a certain portion of this becomes in-

flamed, and certain glands on its surface are enlarged. Later the affected part passes into a condition of ulceration. This may, in bad cases, or those carelessly nursed, cause perforation of the bowel, leading to fatal results. By keeping all this in mind one understands why the doctor allows only fluid nourishment in these cases, why those who are nursing must never on their own responsibility give any aperient, and why it is necessary to get the patient to lie as quiet as possible. Milk is the food which is found most useful in cases of typhoid. Sometimes you are told to peptonise it, but usually where there is diarrhoea a little lime water is added to it, and when there is constipation plain water is used as the diluent. Very often one is told to boil the milk. Generally about three pints of milk freely diluted are given in the twenty-four hours, and the patient should be given it in small quantities about once in two hours. In many cases where the patient grows tired of the milk, a little beef tea or chicken tea is allowed in addition to it. After the temperature falls he will, in all probability, be ravenously hungry, but no solid food will be allowed during the first seven or ten days of convalescence. It takes that length of time for the ulcers which have formed in the intestine to heal, and if, before then, solid food be given, small particles of it may pass undigested from the stomach, causing irritation to the part which is slowly healing. Then there is a return of the inflammation, and the surface, which has partially healed, breaks down again. I find that the feeding at this stage is often a "bone of contention" between the doctor and the friends of the patient, because it is so difficult at times to resist the entreaties for food. One must bear in mind, however, the fact that experience has clearly shown the certainty that there will be relapse if other than fluid food be given during the first week or ten days of convalescence. After this give any additional and more solid nourishment

very carefully, first by adding a little Benger's food to the milk and some thickening to the beef tea—arrowroot, fine bread-crumbs (baked and well soaked in the beef tea), or, what is perhaps best of all, a little baked flour. Directions for preparing this are given along with the recipe for beef tea. Next some soft milk pudding is given, such as arrowroot or eustard, and, if the patient is progressing favourably, perhaps about the fourteenth day he may be able for a little fish.

In scarlet fever it is particularly important that the patient should be isolated immediately. The symptoms of it are vomiting, high temperature, headache, sore throat, and rash. Look for the rash first on the chest near the neck, and it usually appears about the second day of the illness. The tongue is characteristic. It is white and furred, and has bright red spots on its surface. In all cases of scarlet fever pay particular attention to the ventilation of your sick-room, and keep it at a temperature of 56° to 58° F. Burn any discharges from the nose or throat of the patient. Soft pieces of old linen can be kept for removing these. Milk is the food mostly given, because, as a rule, it is easily digested, and by making it the principal food of the patient, you lessen the risk of kidney complications. One must endeavour in every instance to avoid any unnecessary work for those organs in a case of scarlet fever, and so, during the attack, the nurse must see that the bowels are kept active. Always in nursing this fever guard against any possibility of chill. Sometimes tepid sponging is ordered during the acute stage of the fever, and it must be accomplished quickly and carefully. The chief source of infection from scarlet fever lies in the desquamation or "peeling" of the surface skin. This process may continue through a course of six weeks or longer, and so long as it lasts the patient is to be regarded as highly infectious. Probably after the

temperature has been normal for some days you will be told to give the invalid a bath every night—it may be between blankets at first, and later, by the fire. By means of this the skin is kept more active, and so to some extent you reduce the work that might be required of the kidneys. Also this washing and rubbing with the towel afterwards, helps to loosen the scales being shed, and so the process of desquamation is more quickly got over. It is well to add some disinfectant to the water, and a little creolin or izal does very well. Very often carbolic soap is used in those cases, but this often proves very irritating to the skin, which, in the circumstances, will be more than usually tender. After the patient has had a bath, see that the water is emptied away at once. In some cases you will be told to rub the skin with some disinfecting oil, and then you must be most careful not to expose the patient more than is absolutely necessary. The oil must be thoroughly, though gently, rubbed into the skin, and it is wisest to do this at night, because the rubbing makes the patient more likely to fall asleep. When this treatment has been ordered, do the hands and feet oftener than once a day. It is well, except when a specimen is to be kept for the doctor, to disinfect the urine or water passed, immediately, by adding to it izal (1-100), or chloride of lime (1-50).

For some time after the patient is convalescent, continue to take the temperature in the morning and at night.

As Bright's disease is a very common complication of scarlet fever, the nurse must, during convalescence, watch very carefully the water passed. The doctor will require a specimen of it very frequently, and see that the bottle has a label on it, with the patient's name. Be very careful to observe any lessening of the quantity passed, any smokiness in its colour, or the appearance in it of blood. Never forget to report any of those symptoms to the medical man

at the earliest opportunity. A nurse, if she is conscientious, can do much to prevent kidney complications by avoiding all risks of chill to the patient, and by noticing that the bowels are kept active. Very often the diet is entirely restricted to milk in order to lessen the work that the kidneys perform. Rest to the patient will also help in avoiding the risk of Bright's disease, and so he must be kept entirely in bed until the doctor consents to his being allowed to get up. Any dropsy or puffiness round the eyes must be at once reported.

Rheumatism sometimes occurs after scarlet fever, so that if there is any swelling, pain, or even tenderness, in the joints, however slight, the doctor should be told of it when next he visits the patient, and until then keep the ailing joint wrapped in cotton wool.

Another complication of this fever is discharge from one or both ears. If you observe anything of this, however slight it may be, tell your doctor, because if neglected it may pass into permanent deafness, or an abscess in the brain may result.

Sometimes the throat ulcerates, because of the organisms which lodge in it, and the glands of the neck may become swollen. Heart complications are sometimes found, and so any pain in the chest should be reported. If you notice any redness, or running from the eyes, any appearance of twitching, bad headaches or squint, tell your doctor this. Those who are nursing can do a very great deal to help the doctor by carefully observing the patient's condition, and by neglecting to report no detail likely to be of importance.

Measles is an epidemic disease very common among children, and indeed very few escape having an attack.

The symptoms of measles are chilliness, headache, sneezing, running at the eyes, and cough. The temperature rises, and on about the fourth day the

rash begins to appear, first about the mouth, then it spreads along the forehead, and usually it reaches the hands and feet last. About the seventh day the symptoms begin to subside.

Contagion from measles is specially active in the early stages of the disease, and consequently infection may be spread by an individual before it is recognised that he is suffering from such an attack. Therefore, in a district where measles is prevalent, these symptoms described should at once arouse suspicion, the child should be put to bed at once, and the doctor called in. People are too apt to look upon measles as a very trivial complaint, but care and attention are required to avoid complications more or less serious.

Daily sponging of the body often gives comfort, but the medical man should be consulted before this is done, and precautions must be taken to avoid risks of chill, or lung complications may occur. The face and hands are of course sponged night and morning with tepid water. Let the ventilation of the sick-room be well attended to. Sometimes to relieve the catarrh you are told to erect a steam tent (see chapter on sick-room appliances). Attend to the conditions of the bowels, but don't give purgatives without the doctor's advice. The food given should always be light, and milk is again the great stand-by. After the feverish stage has passed off, more solid food is given gradually. To drink, the patient may have plain water, soda or potash water, barley-water, and often toast water is much liked.

As in all infectious diseases when there is discharge from the nose or throat, a handkerchief should not be used, but instead of it, pieces of old linen, which are burned at once. When the eyes are weak, keep the sick-room darkened.

The complications of measles are chiefly concerned with the respiratory organs. Bronchitis and pneumonia often develop, hence the great necessity for

avoiding risks of chill. Sometimes diarrhoea and sometimes convulsions, occur. In the former case the diet ordered will most likely be milk and lime water. For nursing in cases of convulsions see the chapter on emergency work.

During convalescence give nourishing food, and guard against chills. After the patient is able to get up a nightly bath should be given, as there will be some slight desquamation.

German measles is an ailment much less severe than that just described. There is less catarrh and less danger from chills, while the rash is mostly about the face and arms.

In **mumps** there is swelling and inflammation of the salivary glands, with great stiffness of the neck, pain, general feverishness, and discomfort. Keep the patient in bed, and sometimes the sides of neck are wrapped in soft cotton wool. To relieve the pain, hot fomentations are sometimes ordered. During convalescence give the patient nourishing, light food.

Diphtheria is very contagious, and the incubation period is very short, sometimes only a day or, it may be, scarcely that, intervening between exposure to infection, and the development of the disease.

Sore throat is often the first symptom you will observe. The tonsils and uvula are swollen and red, and a whitish membrane appears. The glands of the neck are swollen, the patient is prostrate and weak, swallowing is difficult and painful, and sometimes there is a discharge from the ears and nostrils. In bad cases there is a short, hard cough, and breathing is difficult, noisy, and crowing. The child may be very restless, and the lips blue. The patient should be watched night and day for the appearance of any of those bad symptoms.

Of course in nursing a case of diphtheria, you must see that the patient is strictly isolated, until the doctor says that it is safe for him to leave the sick-room.

See that the ventilation is good, but at the same time prevent all risks of chill.

The nurse must be careful to guard against getting any particles of mucus or membrane, coughed up by the patient, into her own mouth or eyes. If those reach the lips, she may very easily contract the disease. Sometimes, when attending to the patient's throat, a handkerchief is tied over her mouth, and spectacles are worn over the eyes. The patient's throat must necessarily receive a great deal of attention. You may be told to syringe it once in two hours, but more often to swab it with cotton wool soaked in whatever lotion may be ordered. While doing this the tongue must be depressed, and for this purpose use an old teaspoon bent in the middle of the handle to form a right angle. Depress the tongue with the handle of the teaspoon, holding the bowl in the hand. See that the feet and legs of the patient, suffering from diphtheria, are kept warm. Excessive bleeding from the nose occurs in some cases, and sometimes it is quite impossible to control this even by plugging the nostrils with cotton wool. Often in those cases the nostrils are syringed with iced water, and ice, finely broken up, is applied externally, rolled up in a small piece of muslin. See that a patient like this is quiet as possible, and always keep any patient who has diphtheria in a recumbent position. Sudden deaths have frequently occurred from raising the patient to a sitting one. Often it is very difficult to get a patient suffering from this disease to take food, but one must do what is in one's power to have all the nourishment possible taken. Milk forms the staple food in those cases, and it may be diluted if necessary with plain water, or with barley or soda water. Meat juice and chicken jelly are easily swallowed.

Sometimes a steam tent is erected (see chapter on sick-room appliances), and it will be required if

tracheotomy is performed. Don't forget that after this operation you must give just as much attention as ever to swabbing your patient's throat. In nursing cases of tracheotomy, attend carefully to the regulation of the sick-room temperature, and see that the fire is not allowed to get too low. Especially if the patient be a child you must be most vigilant, or the tube may be pulled out, and if the tape securing this gets wet and soiled tie on the new one before removing the old. When strings of mucus are partially coughed out of the tube be quick to seize each in one of the small pieces of linen which you will have ready for the purpose, and pull it out before it can be drawn back into the tube, as this would entail more coughing and exertion to the patient in getting rid of it at last. A collection of well-cleansed hens' feathers are kept for cleaning the inner tube, and as soon as this begins to become obstructed it should be removed, cleared, and occasionally washed in water with a little soda in it. If you have two inner tubes, one to replace the other, so much the better. If there be only one, after washing, dry it quickly and replace it inside the outer tube.

If treatment by antitoxin serum is employed, and you are required to give any assistance in connection with it, see that you observe the most absolute cleanliness with regard to the hands and any utensils that may be used.

One of the chief complications of diphtheria is a peculiar form of paralysis which occurs during convalescence. If you find that the patient, while trying to swallow food, returns some of it by the nose, if you notice any particular weakness of the limbs, any squint or appearance of short-sightedness, or a nasal tone in the patient's voice, report such symptoms to the medical man. Sometimes a muscle concerned with the raising of the eyelid is paralysed, and drooping of the upper lid results. If, after tracheotomy,

there is any appearance of swelling about the neck, or chest, see that this is at once reported to the doctor. In nursing diphtheria, notice any quickening of the breathing, as lung complications sometimes ensue.

Chickenpox, or **varicella**, is a very common disease among children, and usually it develops about the thirteenth or fourteenth day after the individual has been brought into contact with infection. It is a very mild disease, and often, were it not for the spots, you could scarcely say that the child is ill. The rash appears about the second day in the form of small pimples appearing on the head, trunk, and limbs. They come out in crops, and the fluid is semi-transparent, and of a milky colour. Later they burst and dry up, forming a small scab. The ailment lasts for about two weeks, and the patient is infectious until all the scabs have dropped off. The child should be isolated, and see that his diet is light. He must not be allowed to pick at, or scratch the eruption. Attend to the ventilation of the sick-room, but avoid all risks of chilling the patient's skin.

The incubation period of **whooping-cough** is very often about a week. The disease is a very infectious one and occurs chiefly among children. At first the child appears to have a feverish cold, and suffers from a general feeling of illness. Fits of coughing occur, gradually becoming more violent as the disease progresses. The inspirations during those attacks have a whooping sound which is characteristic of the disease. During the fits of coughing the appearance of the child is often alarming, the face being red or almost purple, but there is no need for fear, because this will pass off. After the paroxysm there will probably be retching and vomiting.

At least so long as there is any temperature the child is kept in bed, but when this has gone, it is better to have him up and about, for there is no cure quite so good as fresh air, although at the same time

you must never allow the patient to run risks of chill. While he has an attack of coughing, give support by placing the hand gently and firmly over the forehead, and, so far as lies in your power, guard against those attacks by attention to the digestion and by trying to avoid nervousness and fear on the part of the patient. Attend carefully to the child's general health for some time after the ailment has completely passed off, because it is apt to leave him in a somewhat lowered condition.

The symptoms of an attack of **erysipelas** or "rose" are shivering or rigor, high temperature, a very frequent pulse, the tongue furred, severe headache, and a bright redness of the skin surface which spreads rapidly. Often this redness appears first about a wound, owing to certain germs having reached it. When there is no wound the redness is generally over the face and head. There is more or less swelling over the affected part, and the tissues feel tight. There is no very definite period of incubation in this disease. Usually it is over a week.

Give the patient light and nourishing food in fluid form while the fever lasts. Be on the outlook for rigors. Directions for the nursing required when such a condition occurs are given in Chapter II. If there is a wound attend to it very carefully, and good ventilation and cleanliness are essential in these cases. Be particular in carrying out any instructions given for local applications, and always bear in mind that this disease is highly infectious, so that you must avoid all needless risks of conveying it to others. Burn any dressings used.

Tuberculosis is an infectious disease common to animals as well as men. The lungs are the organs most commonly affected by it, and then we speak of it as consumption or phthisis. It was at one time looked upon as a hereditary disease, but since Koch discovered the bacillus of tubercle, it has been recognised

as an infectious one; moreover, it has been proved that few, if any, people are born with the disease, and that even in those cases where the individual has a tendency towards it, this can be overcome by the observance of the laws of health, particularly those concerned with the breathing of pure air, taking good, wholesome food, and the avoidance of overwork. Certain occupations and localities seem to predispose towards the disease more than others do, and statistics clearly show that overcrowding tends to produce it. It is often very difficult to trace the origin of a case of consumption, because its period of incubation is not known, and it is even impossible to say definitely when the patient first fell a victim to it. Nowadays it is generally acknowledged that the germ is often conveyed to the individual in food, very frequently, it is believed, in milk. Germs thrive and develop very readily in this, and so, unless you are sure of the purity of the milk supply, all milk to be used in the home, and particularly that given to children, should be boiled. Very often the germ of tubercle is found in meat. Good cooking can destroy it and so render the meat harmless, but when meat is eaten in a half raw condition, as frequently it is, the germ retains all its power to produce suffering and death.

The temperature of a patient suffering from consumption varies with the stage of the disease, and the progress which, at the time, it is making. Usually it is highest in the evening, and the patient has attacks of profuse perspiration followed by a feeling of chill. Generally there is wasting and emaciation, and, towards the end of the disease, extreme weakness, although the mental condition of the patient is hopeful and bright. Usually the face is pale, except for the bright hectic flush on the cheeks, which is characteristic of the disease. At first the cough is mild, but later it is harder and more troublesome, coming

on at last in paroxysms which are very exhausting to the patient and very painful to those who witness them. The expectoration at first consists of mucus, but it becomes more yellow as the disease goes on, and may be streaked with blood. Examination of it under the microscope would show fragments of lung tissue, and the bacilli of tubercle. In the later stages of the illness there is shortness of breath because large areas of lung substance will have broken down so that the blood is being only very imperfectly oxygenated and purified. There may be spitting of blood, and this may be present to the extent only of a few streaks in the expectoration, or the blood may come so rapidly as to be drawn back into the air passages, and cause choking. Blood from the lungs is bright red with air bubbles in it, and it is mixed with phlegm.

In nursing a case of consumption, our aim must be to do everything we can to strengthen the power of the patient's body to resist the inroads of the disease, and to limit, so far as lies in our power, risks of infection to others. Ensure that at all times the patient will have liberal supplies of fresh, pure air. There are no influences more antagonistic to the disease than those of fresh air and sunlight, so that, while seeing that the patient is suitably clothed, it is well to keep him as much in the open air as possible. Guard against allowing your patient to overtire himself either in the matter of work, or in play, or amusements. A phthisical patient ought to have plenty of rest. The doctor will give directions as to feeding, but it is the part of those who are nursing to see that the materials procured for the patient's food are the best obtainable. A consumptive patient ought not to go for the whole night without food. Eggs, beef tea, or milk may be given when he happens to be awake. Always observe perfect cleanliness in regard to the cooking and storing of the food, and guard very

particularly against flies. This is often a matter of difficulty, and the best way in which to get rid of this pest, is by the use of formalin. Prepare this in the proportions of 1 part of formalin and 10 parts of water and place it in saucers in the sick-room, larder, and other parts of the house. The formalin appears to attract the flies, and after dipping their proboscis into it, they die immediately. The patient ought to use his own eating utensils, and all remains of food should be immediately destroyed. Much can often be done to add to the patient's comfort by tepid sponging, and see that his garments are changed as soon as they become damp from perspiration. A light, loose, woollen garment ought to be worn next the skin in those cases, and never a cotton one. See that the bed is warmed at night for the patient, and it is well if he can have a rest after the mid-day meal in those cases where he is allowed to be up and about during the day. When bleeding from the lungs occurs, see that the sick-room is cool, keep the patient from moving much, try to allay any nervousness on his part, and beware of showing any alarm on your own. Pieces of ice, if this is available, may be given him to suck, and an ice bag can be applied over the chest.

In nursing a case of consumption the nurse must never lose sight of the fact that everything that comes in contact with the patient is liable to become infectious. Therefore the sick-room, which should be the largest and lightest room available, ought to have as few lodgments for dust as possible. Heavy hangings, carpets, rugs, false cornices, and carving should not find a place in it. It ought to be kept at all times scrupulously clean, and in order to avoid raising the dust, which in such a sick-room will be more or less infectious, the floor should be brushed with plenty of damp tea leaves, while, for the furniture, the duster used should be moistened

with water to which some disinfectant has been added. All clothing worn by a phthisical patient should be destroyed, or, at least, it ought to be boiled before being given to anyone else. Good ventilation in the sick-room will help to lessen risks of infection. As far as is possible try to avoid breathing air which has been already respired by the patient, and no healthy person should ever sleep in the same bed with a patient affected by this disease. Never kiss a patient who has consumption. Infection is frequently spread by means of the expectoration. This is pretty harmless until it dries, but then it becomes dust and spreads into the air, retaining all its powers for evil. Saliva bottles are sold for use in such cases, and those the patient can easily carry about in his pocket, and by means of them he may to some extent avoid risks of infection to others. A little chloride of lime (1-50) should be put into the spittoon or saliva bottle, to disinfect the expectoration or mucus coughed from the lungs of the patient. If it is not large in amount, however, it is really safer to make the patient expectorate into a piece of old linen, or one of the cheap Japanese paper handkerchiefs, and then put this at once into the fire. A person suffering from phthisis, but moving among others, should be told of his responsibilities in regard to this matter, because often we find such a patient spitting anywhere. Frequently infection is thrown into the air by coughing and sneezing, and so the patient should be instructed to cough into a handkerchief, or better still, into a piece of old linen which he can keep for the purpose, and which instead of being washed may, when soiled, be burnt. All the linen used by a consumptive patient should be disinfected and boiled, while the mattress and pillows when no longer required by him should be burnt. By commonsense and forethought in nursing such cases, much can be done to limit infection.

Disinfection. It is of great importance, after all

cases of infectious disease, that this process should be thoroughly, and carefully, carried out in order to avoid, in the future, risks of infection to healthy people. If curtains and carpets have been removed at the commencement of the illness, disinfection will be much more thorough. After a long case of consumption the mattress and pillows should be burnt, or buried. In other cases they are often sent somewhere to be taken to pieces, and there the hair is disinfected by exposure to a high temperature and then re-covered with new material. More often we find that the pillows and mattress are simply disinfected when the sick-room itself is done. For some cases this may be sufficient, but remember that fumes of sulphur, or a formalin spray, are not to be relied upon for their thorough disinfection. When such things are to remain in the sick-room while it is disinfected, lay the mattress over the backs of four chairs, and place the pillows about the sick-room. If there are a few garments which cannot be burned or destroyed, but which require disinfection, let those be hung up in the room. Close or block up the chimney and plug the keyhole, then pull out all drawers and open wardrobes and cupboards. Close the windows, and if there are any spaces at the sashes and sides of these, paste brown paper round them. Don't forget to pull the blinds, so that they may receive their share of disinfecting. Formalin may be used in the form of a spray, but more often, when disinfection is being carried out by those in the home, sulphur in some form is more convenient. Special apparatus is sold for disinfecting by means of formalin, but a large garden syringe is sometimes made to serve the purpose. Spray the walls from below upwards so that the moisture may be evenly distributed over them when the process is finished. The blinds, floor, furniture, and whatever may be in the room must be well sprayed, and when you know that every part of the

room has been thoroughly gone over, leave it, and, after closing the door, paste brown paper round the margins of that, and see that the space between it and the floor is properly blocked up.

When sulphur is used, after arranging the room as described, place a pail of water in the middle of the apartment, and above this rest an iron shovel containing from one to two pounds of rock sulphur. Over the sulphur put a few drops of methylated spirit and light this. Instantly leave the room and seal up the door as before, keeping the room closed up for twenty-four hours. Next day the windows are all thrown open, and keep them so as much as possible for some time to come, because in no way can you purify such an apartment better, than by letting in an abundance of fresh air and sunlight. Most probably, after a case of infectious disease, each room in the house will require to undergo the process of disinfection also.

After a very infectious case, such as scarlet fever or consumption, it is absolutely essential that the sick-room should be repapered. See that the old paper is *entirely* stripped from the walls before the new is put on. If the room can be again disinfected between tearing down the old paper and putting on new so much the better, but at least the bare walls ought to be thoroughly rubbed over with a cloth wrung in a disinfectant. The furniture should receive thorough washing with soap and water, to which some lysol has been added, and see that you get into all joints and corners, especially when doing the bed. Take out all drawers, so that every square inch of the furniture may be gone over. Remember that during the illness infection will gravitate very readily towards the floor. First wash that over with lysol and water, and then, when it is almost but not quite dry, get an old knife, and if there are crevices between the boards, scrape out the dust which has collected between them.

Notice that this must be done while the floor and the dust are still damp, otherwise infection will be thrown into the air. Next the floor is swept with a brush slightly damped, and then it is very thoroughly scrubbed with soap and water, to which some lysol has been added.

As has been said elsewhere, all the linen used by an infectious patient should be disinfected. To do this a bath is kept outside the sick-room door, or better still, in a dressing room adjoining it, containing carbolic (1-20), izal (1-100), or what is perhaps more convenient, strong lysol and water. The garments are put into this immediately they are taken from the sick-room, and, unless there chance to be blood stains, as sometimes happens in diphtheria, they should be boiled before washing. Heat is a very simple and a very efficacious way in which to destroy germs, and the higher the temperature the more quickly is this accomplished. Ten to twenty minutes at boiling point is usually the limit given when you are disinfecting linen in this way. Steaming is even more effectual than boiling, but the apparatus required for this is not available for home disinfection. Linen worn by an infectious patient ought to be washed at home, as sending it to a public laundry only tends to spread infection. Any garments not of great value, and which cannot be boiled, ought to be burnt or buried.

A good way in which to disinfect hats is to place them for some time in a box, air tight as possible, and containing a small basin with formalin.

To disinfect other unwashable garments so far as is possible, a basin with formalin is placed inside the wardrobe in which they hang, and its doors are kept closed. As has already been said, books which have been in the sick-room during an infectious disease should be destroyed. Sometimes we read advertisements in which some individual lays claim to being

able to disinfect those without injury to them, but this is a fallacy.

Often throughout the course of an infectious disease, a sheet kept saturated with carbolic is hung over the outside of the doorway. The disinfecting power of this is not great, and it rather interferes with ventilation. It is, however, I find, a very effectual means of impressing the other members of the household with, and causing them to remember, the infective nature of the malady. In all cases of infectious disease pay special attention to ventilation.

The sleeping rooms of those who are nursing are always to be regarded as being infectious like the sick-room. Much responsibility rests with the nurse, and she must make up her mind to be for the time, not only an outcast so far as members of the household itself are concerned, but to the world in general. No one who is nursing an infectious patient should go into any public car or conveyance, nor should she even walk out in the dress which is worn in the sick-room. She should avoid, if possible, writing and sending letters through the post. At the end of the case her own clothing, like everything else in the sick-room, demands thorough disinfection. A hot bath with plenty of soap, and very thorough scrubbing from head to foot, is necessary before putting on fresh, non-infected garments. Remember, too, the danger which the hair presents with regard to the spread of infection. This must therefore be washed very thoroughly, and when dry again soaked in carbolic lotion (1-40).

TABLE OF INFECTIOUS DISEASES.

Disease.	Incubation Period.	Period of Quarantine.
Typhoid.	Indefinite; usually ten to fourteen days.	Indefinite; usually until strength is recovered.
Scarlet Fever.	One to eight days.	Six to eight weeks.
Measles.	Seven to eighteen days.	Four to five weeks.
Mumps.	Fourteen to twenty-five days.	About four weeks.
Diphtheria.	One to five days.	Till all germs are gone from the throat.
Chicken-pox.	Ten to sixteen days.	Until all scabs are gone.
Whooping cough.	Five to fourteen days; often about a week.	Indefinite.
Erysipelas.	About a week.	
Small-pox.	Twelve to fourteen days.	Till strength is regained.

CHAPTER XII.

NURSING IN CASES OF FRACTURE.

IN few ailments is recovery more dependent upon careful nursing, than in cases of fracture or broken bone. There are many different varieties of fracture, but the only two which need be discussed in a book on home nursing are the simple fracture, and the compound. In the simple fracture the bone is broken, but there is no superficial wound. In a compound fracture we have a wound leading down through the skin and tissues to the seat of the break. The point that one must ever bear in mind, especially when rendering first aid in accidents of this kind, is that a simple fracture may very easily be made a compound one by any careless handling; and once the fracture does become compound, not only is recovery much delayed, but other very serious complications may arise. Hence the great necessity for care in rendering first aid, and in nursing cases of fracture. For this reason it is well that those about the patient should know some of the signs or symptoms of fracture. Those are as follows :

1. Pain.
2. Deformity—the shape of the part is altered.
3. Swelling.
4. Loss of power.

5. Shortening. This symptom is more one for the medical man. Usually we find him measuring the broken limb and the sound one, and generally the former is found to be rather shorter than the latter.
6. Abnormal mobility. The part bends where it ought not to.
7. Crepitus—the grating of the broken fragments of bone against each other.

In connection with symptom No. 3, it is important that the doctor be sent for immediately, otherwise the swelling may become so great that it will be almost impossible for him to diagnose the injury, far less reduce or “set” the fracture.

No one without technical skill should move the part to ascertain whether symptoms 6 and 7 are present. The former is, however, usually more or less apparent, and in regard to the latter, one often hears the grating of the bones when the doctor is reducing the fracture. Besides the symptoms above mentioned we may have others, such as bruising, or a crack may be heard when the accident happens. If the injury be severe there may be collapse, or a condition of sickness, or faintness.

As already said, the first aid rendered in cases of fracture is of great importance, and in all cases when in doubt as to whether or not a bone may be broken, treat the case as one of fracture. Medical examination later may show that this is not the nature of the injury, but until one is sure on the point it is wise to take every precaution. If the medical man can be brought quickly to the scene of the accident so much the better, for then he will superintend the moving. If circumstances make this impossible, then those about the patient must render the necessary assistance, and in doing so, bear in mind the risk of making a simple fracture into a compound one, impressing

upon your patient also the necessity for keeping as still as possible. As a rule it is not necessary to remove the clothing until the patient has been taken home, but some firm support must be applied to keep the limb rigid. In cases when the thigh bone is broken, it is well to extemporise a splint that will reach from under the arm to the foot of the injured limb, so that the whole body may be kept rigid. The handle of a long broom sometimes serves the purpose very well, or a long narrow bar of wood can be knocked from a gate or fence near at hand and made to act as a splint. Having selected a suitable support, apply it to the outer side of the limb, and keep it in position by handkerchiefs, bandages, or rope. Those are passed under the natural hollows of the limb, in order to avoid the necessity for raising it. Pass one under the knee, and draw it up gently under the thigh; place the second under the knee-joint, and the third below the ankle. A cravat, or a piece of rope is also passed under the patient's waist. The extemporary splint chosen is then placed alongside the outer aspect of the limb, and the handkerchiefs, or whatever may be used to keep it in position, are brought round and tied in the reef knot (see chapter on bandaging). The rigid support is kept close to the side of the body by means of the cravat placed in readiness for that purpose under the patient's waist. *Note that no handkerchief or bandage is passed round the limb at that part where the fracture happens to be.* All such applications must be applied above and below the break, never over it. After the extemporary splint has been put on in this way, the sound limb must be bandaged to the broken one. Pass the first piece of rope, a cravat, or whatever it may be, under the knees, and draw it up under the thighs; place the second under the knee joints, and the third under the ankles; bring the ends together, tying them always in a reef knot. Next, the patient must

be carried home on some extemporised stretcher, such as a shop shutter, a broad board, or a wooden gate taken off its hinges. When lifting, one person takes entire charge of the wounded limb.

To prepare a bed for a fracture case, use the hardest mattress you can find. In hospital we make this still more unyielding by stretching boards across the bed under the mattress; there, too, we use, for such cases, a fracture mattress, sections of which can be removed without interfering with the part on which the limb rests. In this way we avoid raising parts of the patient's body, as one must occasionally, when an ordinary mattress is in use. If there is a condition of collapse this is attended to as already described in the chapter on emergency work¹; otherwise, the patient, after being carefully lifted into bed, is undressed, with a blanket thrown over the body. Some of the clothing will require to be cut off to avoid movement of the injured part. If the patient be a man cut the boot down the lacing part and down either side, cut off the sock, and cut the trouser down the outside seam. Be careful not to allow any weight of bedclothes to rest on the toes of the injured foot, until the doctor's arrival.

In cases of **fracture of the thigh**, the draw-sheet should not be tucked under the mattress in the usual way, but it ought to be folded up and secured to this with three or four safety pins on each side. If you keep the draw-sheet in position by pushing it under the mattress, you are much more liable to cause movement at the broken ends of bone, so retarding recovery. Bed-sores are very liable to occur in most cases of fracture, but particularly in cases of fracture of the femur or thigh bone. Watch carefully for redness or tenderness at the foot of the spine, the hips, heels, and shoulders, because, especially if the patient is old and weak, only extreme carefulness

¹ See hæmorrhage, also poisoning (aconite).

will prevent irritation and soreness. Be very careful in nursing cases of fracture of the thigh not to cause movement to the limb by shaking the bed, by accidentally coming against the blocks placed under it at the foot, or by jerking the weight or the cord from which it hangs.

In cases of **fracture of the knee-cap** the patient cannot raise the limb from the ground, and often separate fragments of bone can be felt under the skin. Apply a splint at the back of the knee, securing it above and below with handkerchiefs. Then both limbs are tied together, and the patient is taken home on a stretcher, to await the doctor's arrival.

For a **fracture of the lower leg** place suitable splints on either side of it. Flat pieces of wood will do, or an umbrella may be placed along the outer side of the limb, while a shorter splint is placed inside. These are secured as before by three handkerchiefs, or whatever may be at hand, to keep the appliance in position, using the reef-knot in tying them on; they are placed above, and below, the break, but never immediately over it. Very often a fracture of the lower part of the leg is mistaken for a sprain, therefore, if there is any doubt whatever as to the nature of the injury, a medical man ought to see the part at once. As in the case of fractured thigh bone, the doctor will bring most of the necessary appliances with him, but probably he will ask you for a towel, and part of a sheet, or a large piece of strong calico. Be very watchful, in any case of fracture of the lower limbs, that the splints remain in the position in which he adjusted them. If in any way they become displaced, or if the patient complains of pain, be sure to let the doctor know.

A **green-stick fracture** is very common in children. The bone bends like a green stick, without actually breaking through. The treatment, however, must be the same as in the case of an ordinary fracture. Very often in such cases, until the doctor can be brought,

the limb is put into a stiff folded towel or into a folded newspaper. This is curved to form a sort of trench, and the limb is laid into this; it is kept in position, above and below the break, with handkerchiefs.

For **fracture of the upper arm** apply two extemporaneous splints, one over the outer, and another over the inner, surface. If the clothing has been removed, they will require a little padding. Keep them in place with handkerchiefs tied above, and below, the break, and place the arm in a narrow sling. For fracture of the forearm apply splints in the same way, and put the arm into an ordinary sling, with its long margin towards the hand. Usually after such an accident the patient can walk home, but caution him to keep the fingers still. When taking off the clothing remove the sleeve from the uninjured arm first.

In cases of **fracture of the pelvis**—that is the basin-shaped circle of bone which supports the organs contained in the abdomen—very little can be done so far as rendering first aid is concerned. The greatest care and gentleness are necessary, and so, if possible, it is better to have a medical man to superintend matters from the beginning. In any case in which such an injury is suspected no time should be lost in sending for him. A broad roller bandage is sometimes applied round the part to give support until his arrival, but this must be applied with great care and with *the least possible movement*. Usually the signs that there is a fracture in this region, are great pain, the patient is quite unable to sit up, and generally, too, there is more or less shock or collapse. For this the treatment described in Chapter IX.¹ is applied, but as there is a probability of internal hæmorrhage no alcohol should be given until the doctor has ordered it. As organs in the abdomen may be injured it is important to notice whether the patient can pass water or not. If so, notice whether there is any blood in it.

¹ See hæmorrhage, also poisoning (aconite).

In nursing such a case see that the patient does not move much, and, in some cases, pillows are required to help in keeping the part at rest.

The **shoulder blade** is rarely broken, but when it is so place the arm in a sling, and keep it quiet until the doctor's arrival.

Broken ribs are a very common result of an accident. The symptoms of this are crepitus or grating of the broken fragments, difficulty and pain in breathing, and, it may be, spitting of blood. The first aid lies in applying a bandage, six or eight inches wide firmly, round the chest. If such a bandage is not available, a cravat may be used instead. If there be spitting of blood, showing that a sharp fragment of bone has pierced the lung, be very careful to avoid having the bandage too tight, or still further injury may result. In nursing such a case, always be on the watch for any appearance of blood in the expectoration.

Fracture of the breast bone is not common. In such a case the symptoms are pretty much like those we find in fractured ribs, and the first aid treatment is the same.

In cases of **fracture of the spine** most of the treatment lies in the nursing, and in keeping the patient at rest. Attend to the condition of the bowels, and be very careful to guard against bed-sores, because if there is any neglect of precaution in regard to their prevention, even it may be only for a day, a bed-sore may form very rapidly indeed. Bed-sores occur very readily in these cases, but still there is always a suspicion that the nursing has been careless, when they do. In rolling fresh sheets under the patient, don't allow him to attempt the moving, because, besides being dangerous, this will cause pain. You must yourself gently turn the patient to one side or the other. Be always on the outlook for any appearance of bronchitis or some other lung condition.

When the **skull** is fractured there is usually present the condition known as concussion. The patient is unconscious, or can be only partially roused. The pulse is weak and irregular, and the breathing shallow. As in all cases of fracture, send for the doctor immediately, and keep your patient warm and quiet until he comes. If any lifting is necessary before his arrival, see that it is done with great steadiness, and give no stimulants. In nursing such cases, be very observant of your patient, because a careful report of all the symptoms may be of great value to your doctor. Notice the pupils, whether they are dilated, or whether one is more so than the other; and notice whether there is any paralysis on either side of the body. Observe the pulse; usually in these cases it is slow, but occasionally it is quickened. The breathing will most likely be heavy, loud, and slow. Notice whether or not water is passed, and whether unconsciousness is partial or complete. If there is any appearance of bleeding from the nose, ears, or mouth, or a watery discharge from the ears, be sure to report it. Vomiting is a common symptom. It is the part of a nurse, in these cases, to see that the patient is kept warm, while avoiding carefully any possibility of burning from hot jars. Keep the sick-room quiet and darkened, and the patient absolutely at rest. Do everything for your patient, anticipating all his wants, and keep strictly to the doctor's instructions in regard to diet. If an ice bag is ordered for the head, see that you do not fill it so full as to be heavy, and that the ice in it is kept constantly renewed.

When the **bones of the face** are injured, let the patient be seen by the doctor immediately if possible, because swelling increases very rapidly in such cases.

Signs of a **fractured jaw** are inability to close the mouth, deformity, the teeth are uneven, there is bleeding from the mouth, and grating of the broken

ends of bone on one another. To apply first aid, fold up a handkerchief in the form of a triangle, then fold back the point of the triangle to its base. It may be necessary, if the handkerchief chance to be a large one, to fold it once more. Place the centre of the bandage so formed under the chin, and tie it on the top of the head in the reef knot. A special form of bandage is used for this fracture. Get a piece of calico about a yard long and three inches wide. Slit down the ends of the bandage to within three inches of the centre of the bandage. A hole is then made in the centre of the bandage, parallel with its margin. Apply as illustrated in Chapter XIV., Fig. 28. In cases of fractured jaw fluid food only is allowed, and is given through a tube attached to the feeding cup. Caution the patient to keep the part at rest.

CHAPTER XIII.

BATHS, HOT AND COLD PACKS, ETC.

Temperature of various baths.—

Cold under 60° F.

Cool 60° – 80° .

Tepid 80° – 90° .

Warm 90° – 100° .

Hot 100° – 112° .

Hot baths. When the doctor bids you give a patient a hot bath see that everything is ready in the sick-room before commencing the treatment. Place the bath by the fire, and there must be a plentiful supply of hot water, and cold also to cool that sufficiently. A bath thermometer is absolutely necessary in giving this treatment, to ascertain from time to time the temperature of the water in the bath, and in testing this, read the thermometer the moment that you take it from the water, because it will fall by contact with the air of the room immediately you remove it from the bath. Put a fresh nightdress by the fire to warm, along with extra blankets and some bath towels. If the patient is not allowed to get out of bed much, it will be well to procure a supply of freshly aired linen for the bed. Have in readiness also a supply of hot jars ready filled. Should you not possess enough of these, hot bricks, or hot plates will do instead. Have in readiness what is needed for giving the patient a hot drink once he is back to bed

and made quite comfortable. Close the windows of the sick-room for the time being, and ascertain its temperature. See that the bath is not placed in a draught, and that the fire is clear and bright. It very rarely happens that the doctor orders a hot bath for a patient who cannot manage alone, but when this is so place a draught screen round the bath, or, if you have not got this, a clothes-horse with sheets pinned over it. Then, before the patient leaves the bed, a blanket is pinned round the neck. When about to step into the bath the nightdress can be slipped down under this blanket, and, on getting into the bath, the blanket pinned round the neck is spread over the sides of the bath. Test the temperature of the water in the bath frequently, and see that you keep it continually at that which the doctor has ordered, by adding small quantities of more hot water at the side of the bath farthest from the patient. Usually the doctor bids you keep the water at 100° F., but frequently he bids you raise it gradually to 110° F. If very helpless and weak, the patient must be lifted into the bath in the under-sheet. Untuck this at either side of the bed, and then, after removing the gown, get two or three people to grasp both margins of the under-sheet together over the patient's body and under the upper bed-clothes. Some one lifts under the shoulders, and when all are ready the upper bed-clothes are thrown back and the patient is lifted into the bath. Place a blanket round the neck and over the sides of the bath. Generally you are told to make a bath like this last for twenty minutes, and meantime, while watching the patient and attending to the regulation of the temperature of the water, you must take the opportunity to make the bed. Turn the mattress, and put on the under blanket and a fresh under-sheet. Most likely, after the treatment, the doctor will bid you keep the patient between blankets, and so you will place a blanket between the under-sheet and the

draw-sheet. Over this and the pillow, put a mackintosh and blanket or a thick, double blanket, and above this and under the upper bedclothes, another blanket. Those two are extra blankets, which will be removed from the bed once the patient has been dried between them. If he is to be kept between blankets after the bath, have those between the two sheets, also, above the patient's ordinary bedclothes, put extra blankets, and place several hot jars in the bed, to warm it.

When the twenty minutes have expired, the patient steps back into bed in the blanket, which has been round the neck and over the sides of the bath. Of course in bad cases, he must be lifted back into bed in this blanket, the under-sheet being, for the time, simply left in the water. When you have covered him with the bedclothes, remove the damp blanket and proceed with the drying. This should be done quickly, with nice, warm towels, and, when the skin is quite dry, turn your patient gently on one side, and, under the upper blankets, roll the blanket immediately under the body close up to the back. Again turn the patient gently, and pull away this damp blanket at the other side of the bed. Pull the second damp blanket from under the upper bedclothes, and put on a nice, soft, woollen gown. Next, surround the patient with hot jars, or whatever you may require to use in place of those, putting them above the blanket which lies immediately over the body. Then give him a hot drink in a feeding cup, because he must not sit up. The treatment will have been ordered most likely with the idea of inducing perspiration, and those who are nursing must think of every way in which they can help to bring about this result. Attention to this will make all the difference between the success, and failure, of such treatment, and, remember, that during, and after, such a bath, the patient is particularly liable to chill, so that a nurse cannot be too careful in avoiding risks of this. Therefore, she must see that the

sick-room is kept very warm for some time after the patient has been taken from the bath, and the hot bottles and extra blankets are only taken away gradually, not all at one time.

Cold baths for high temperature. When a cold bath is given to reduce the temperature, the case is a serious one, and you must try to avoid exertion to your patient as far as possible, in giving such treatment. Lift him into the bath, as described above, in the under-sheet. The temperature of the water in the bath should be pretty much that of the skin to avoid risks of shock, and it is cooled down gradually in such cases to 65° or 70° F. by adding cold water to it, or, better still, ice. See that you have stimulants within reach, before commencing the treatment, and while the patient is in the bath, feel his pulse frequently, because it is apt to fail. Sometimes you are told to repeat the bath whenever the patient's temperature reaches a certain point. The cold bath is not now, however, ordered very often in cases of high temperature, and of course is upon no account ever to be given, in such cases of high temperature, without the doctor's advice.

Mustard foot bath. This is ordered frequently for severe pain, or cold, in the head. To prepare it use 1 oz. of mustard for every gallon of water, and indeed some doctors bid you use 2 oz. to the gallon of water. Mix the mustard first in a little cold water, and then pour it into the water in the bath. This should be hot as possible, and many patients can bear a temperature of 110° F. Keep on adding more hot water to maintain the heat of that already in the bath, and the feet ought to be kept in this until the skin is reddened. The treatment is best given immediately before the patient gets into bed, and you must see that you have a hot jar at the feet, to maintain their warmth afterwards. If a bath like this is ordered for a patient who cannot get out

of bed, place a blanket with a layer of maekintosh or brown paper under it, below the patient's lower limbs. A second thick, folded blanket must be placed above them to protect the upper bedclothes from moisture. Get the patient to lie on the back, with the knees drawn up, and then place the feet in the bath.

Sulphur bath. Mix about 6 oz. of powdered sulphur in boiling water, and pour this into a full-sized bath.

Starch bath. Mix 8 tablespoonfuls of starch to a smooth cream in cold water. Run water from the hot tap until that flowing from it is as near to boiling point as possible. Next close the outlet of the bath, and place the basin containing the starch under the water coming from the hot tap, then, when the necessary amount of hot water for an ordinary bath has been run off, remove the empty basin, and add cold water to bring the bath to a temperature of about 98.4° F. Add three tablespoonfuls of Cond's fluid to the water, and keep the patient in the bath for about half an hour, adding hot water as required.

Oatmeal bath. Tie up 3 lbs. of oatmeal in a muslin bag, and allow this to lie in water at the bottom of the bath for some time. Then add the necessary hot and cold water, and squeeze the bag of oatmeal in this.

Bran bath. A bran bath often serves the same purpose as oatmeal, and it costs less. Put 3 lbs. of bran in a muslin bag, lay it in a basin, and pour boiling water over it. After a little, run the water from the taps into the bath, and pour into this the bag containing the bran, with the water which surrounds it. Squeeze the bag through the water.

Soda bath. Dissolve a $\frac{1}{4}$ to $\frac{1}{2}$ lb. of soda in a full-sized bath. Sometimes more soda is added when the bath is being given for rheumatism.

Boracic bath. Put 6 tablespoonfuls of boracic acid crystals into an ordinary bath, and keep the patient in the bath for half an hour. A bath like this may

be ordered in certain skin ailments. Sometimes arm, or leg, baths are ordered in the case of a dirty wound. The bath itself, in these cases, is made to suit the part, but you must see that you have a pad of cotton wool under that part of the limb which rests against the edge of the bath, and that the position of the bath is such as to allow of the patient being comfortable as possible. See that the boracic lotion is kept at a proper temperature, by frequently draining off some when it grows colder, and then adding fresh, hot lotion at a point not too close to the limb itself. The bath in those cases must be frequently cleansed, and filled with entirely fresh lotion. Often the doctor bids you keep the part in the bath during the day; while, during the night, in order to give the patient greater comfort, it is swathed in lint soaked in boracic lotion, and this is covered with jaconette to keep it moist. Above, put a layer of cotton wool and a bandage, to keep the dressing in position.

Hot-air bath. A particular form of apparatus is used for this. In appearance it is very much like a steam-kettle without the steam. Allen's steam-kettle can be used for it, but the boiler has to be removed. Take off the patient's clothing and wrap him in a blanket, rolling this under in the usual way, without removing the bedclothes above. Then place a very large cradle, or two smaller ones, (see chapter on sick-room appliances) over the body. Next spread a mackintosh over the patient's own bedclothes, under which you have placed the cages. Pull the bedclothes from under this, and spread some blankets above it. See that the mackintosh and blankets are tucked close up to the cradles on either side, and the blankets closely round the patient's neck. The lamp is next lighted, and placed on a stool or chair, to bring it to the necessary height. The tube passes under the blankets hanging over the cage at the foot of the bed, and see that they fit closely round this so that only

hot air may enter. A thermometer should be hung to the cradle inside, in a position in which you can examine it without removing the blankets, and the temperature of the bath should be from 110° to 140° F. Be very careful that the hot pipe does not touch any part of the patient, and guard carefully against risks of chill. The patient is usually kept in the bath for twenty minutes. While in it he should have a hot drink from a feeding cup, but don't allow him to feed himself, as the arms must remain in the bath. After twenty minutes take away the lamp, and gently slip out the cradles and the mackintosh. The patient is kept rolled in the blankets, however, until perspiration has ceased. Have the sick-room very warm, and then gently and quickly roll out the blanket in which the patient was wrapped, rub him with warm bath towels, and put on a warm gamgee jacket and a gown. See that any other bedclothes which may be damp from perspiration are removed. Hot-air baths are now rarely used, because they are difficult to manage properly, and all patients dislike them.

Vapour baths are given in the same way, only you must have a mackintosh and blanket under the patient besides that in which he is wrapped. Indeed, if possible it is just as well to have this arrangement when giving a hot-air bath also. For the vapour bath, the ordinary steam-kettle is used, but see that the current of steam does not enter at a point too close to the patient's skin. Remember that this moist heat cannot be borne at the same temperature as dry heat, and so we find that 100° to 110° F. is sufficient.

Turkish bath. Let the patient sit in a high cane chair placed in the bath with the feet on a wooden stool. Put hot water in the bottom of the bath, and a blanket is placed round the patient's neck, and over the sides of the bath.

Hot pack. Collect everything which you will require first. Extra blankets will be necessary, and a

mackintosh. Place the blankets, with towels, a fresh gamgee jacket, and a gown round the fire to warm. Have plenty of hot jars ready filled, or, if a sufficient number of those is not available, get hot irons, hot bricks, or hot plates. If the hot drink given is to be brandy and hot water, have what is necessary to prepare it standing on a small tray in readiness, and a kettle boiling on the fire. If hot beef tea or hot milk is to be given, have this warmed in a saucepan and kept hot by the fire. See that the latter is bright, that the sick-room temperature is fairly high, and close the windows for a time. Roll a blanket up lengthwise to half its width, place this in a small bath, and pour hot water over it. Then take off the gown, and roll a mackintosh covered with a warm blanket under the patient in the usual way. Lay a second double blanket over the patient's own bed-clothes, pull those down under this, and spread them above it. Next wring the blanket out of the hot water, and this should be as hot as you can bear it. Two people should do the wringing. If a blanket is unmanageable a sheet is used instead; the blanket, however, makes the better pack. You must do the wringing very quickly, and then lay the rolled part of the blanket under the upper bedclothes, close up to the back; turn your patient gently round over this, and unroll it on the other side. Wrap him up in this wet blanket, keeping the arms inside. Lay hot jars round the body above that blanket which is immediately over the wet one, put one or two extra blankets on the bed, and tuck them all closely round the patient. Give the hot drink in a feeding cup, and of course the patient must not sit up to take it, nor can he feed himself. You must raise the pillow and head a little, and hold the cup to the lips. Generally the doctor bids you keep the patient in a pack like this for twenty minutes. At the end of that time be quick in rolling out the wet blankets, in drying

the surface of the body under the bedclothes with warm bath towels, and in putting on the warm gamgee jacket and woollen gown. Last of all, wrap the patient up in a warm blanket, and he is very likely, I find, to drop off to sleep after the treatment is over. Remove the hot jars and extra blankets gradually.

Cold pack. Wring a sheet from iced water, and roll it up lengthwise to half its width, turn the patient gently on one side, and push the rolled part of the wet sheet under the upper bedclothes close alongside the patient's back. Turn him over this, unroll it, and wrap him up in it, keeping the arms inside, but leaving the feet uncovered. The blankets above are then taken off, and a second sheet also wrung from the iced water is laid over the body from the neck to the ankles. You require to rub this sheet over very frequently with large pieces of ice held in either hand to keep the pack cold. Always have brandy at hand when you give this treatment, and watch the pulse very carefully, for it may fail. Usually twenty minutes is the limit given for keeping the patient in the pack. Cause as little exertion as possible to him when you place a blanket over him and remove the mackintosh, wet blanket and sheets, in drying the skin and in putting on a gown. Let the clothing over the patient when the treatment is over be light. Take the temperature before and after the patient has been in the pack.

Cold sponging. Frequently you are told to do this whenever the temperature of the patient reaches a certain point. I prefer to protect the bed from moisture by using small crib blankets, or, if those are not to be had, with bath towels. It is so easy to get those under the different portions of the body as you sponge them, and there is less risk of causing too much exertion to the patient—a matter of great importance in all cases of high temperature. You

may be told to use plain cold water or water with ice in it; if the former, see that it is renewed when necessary, because it soon becomes warm from the heat of the patient's body. After removing the patient's garments, turn him on the side and tuck one crib blanket well under him along the length of the back. Draw the second one down over the trunk under his own bedclothes, and proceed to sponge the back. Use a large sponge, do the sponging with long steady strokes, and then dry the skin with as little friction as possible. Next, turn the patient on the back, and sponge the chest and abdomen in the same way. The arms are gone over next, and then the little damp blankets are removed. It is easy to place them next above and below the lower limbs while you sponge those. Next, the face is done with nice, cool, fresh water. In those cases, where the sponging is necessarily frequent, you must not give your patient the exertion entailed by taking off and putting on an ordinary nightdress. Get some old one which can be cut down the front. This gives very little trouble, as it is easy to put it on back to front, and push it smoothly under the patient on either side. Sometimes the doctor bids you continue the sponging for twenty minutes each time; but if at any time, while doing it, you see your patient getting blue, or shivering, it is wise to stop at once.

Tepid and hot sponging. Sometimes you are told to use tepid water for sponging the patient in cases of high temperature, and sometimes very hot water. A little vinegar is added to the water, and then you proceed as above.

CHAPTER XIV.

BANDAGING.

A BANDAGE is used for many different purposes. In home nursing it may be applied to keep dressings or splints in position, for the cure or prevention of swelling, or to give rest and support to some part. The art of bandaging well requires much practice; but if certain rules are adhered to, one sufficiently comfortable and secure can be applied, even although it may not have that appearance of neatness and symmetry which only practice can give.

The roller form of bandage is the one most generally useful, and this can be had in various materials—domet, flannel, linen, cotton, buttercloth, muslin, or antiseptic gauze. Domet makes the most comfortable as well as the neatest bandage. Bandages can be procured already made, but where many are likely to be used they can quite easily be prepared at home. An ordinary bandage is six yards long, but it may require to be nine or even twelve. Generally six yards of material are procured, and the selvedge margins are torn from it. With a pair of scissors mark off at one end of the material the widths required. These vary according to the part to be bandaged, but for an adult they are pretty much as follows:

Head, -	2½ in.	Finger, -	-	¾ in.
Lower limbs, 3	„	Trunk, -	-	4 „
Upper limbs, 2½	„	Chest, -	-	4-10 „

Having marked the widths required with the point of the seissors, tear each down three or four inches. Then begin at one margin of the material and grasp the first strip in the right hand, the second in the left, the third in the right again, and so on until all the loose strips are gathered alternately into either hand, so that two separate handfults are formed. Pull each of those groups in different directions to tear the bandages through the entire length of the material.

The great secret of making a good bandage is to roll it tightly, and in home nursing this will most

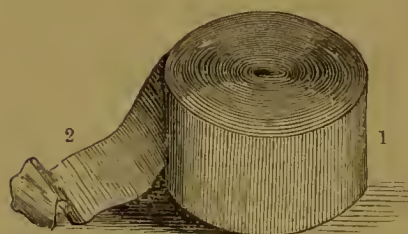


FIG. 10.—Rolled bandage.

1. Head. 2. Tail.

likely require to be done by the hands. Start at one end by laying the bandage about three or four inches back on itself, make a small roll of this part and go on rolling up the entire length of the bandage between the forefinger and thumb of the right hand. A quicker way in which to proceed, but one which requires some practice in order to have uniformly neat bandages, is to make a small roll at the commencement as before, and then lay the bandage on some flat surface: steady the loose part or tail with the left hand, and with the right hand pressing on the roll run that along the strip. Occasionally, when you are rolling a bandage in this way, place the thumb and middle finger in the centre of the coiled margins, and tighten the roll by pulling the loose strip held in the left hand. When the entire bandage is rolled, pull out a few loose threads and wind these round it to prevent it from becoming unrolled. With a pair of seissors cut away any frayed edges from its margins. The rolled part of a bandage is always spoken of as its head, and the loose portion as the "tail."

It never happens that we have a surface to bandage which is absolutely straight throughout. Instead we find a limb growing broader towards one point, while it narrows towards another. Thus the foot grows thicker towards the heel, or the hand towards the first joint of the thumb, so forming what is spoken of as a cone. Then we have that narrowing towards the wrist or ankle, which gives another cone. The point where the bases or broad parts of these cones meet, as at the heel, for instance, is called a junction of cones, while a straight surface, like that at the wrist or ankle, we speak of as a cylinder. For a cylinder the spiral or simple turn of the bandage is used; over a cone we make a reverse, and for a junction of two cones the "figure of eight" bandage is used.

Rules for bandaging.

- I. Stand opposite the part to be bandaged.
- II. Always begin at the lower part of the limb and bandage upwards.
- III. Bandage from the inside of the limb over the front towards the outside.
- IV. Make a fixing turn when commencing to put on a bandage.
- V. Let each turn of your bandage overlap two-thirds of the preceding one, and keep all the margins parallel.
- VI. Let the reverses and crossings come in a line, and keep those towards the outside of the limb, because reverses must not be made over bone.
- VII. While applying a firm, comfortable bandage, be careful to avoid too much constriction.
- VIII. Don't apply more bandage than is required.
- IX. Fix the bandage with a safety pin running in a line with the margins of the bandage, and placed on the outside of the limb.

Bandage for lower limb. Stand in front of the patient, and hold the bandage in such a way that the rolled part lies across the fingers, the hand being partially closed. You find people grasping the bandage between the finger and thumb, and, held like this, it



FIG. 11.



FIG. 12.



FIG. 13.

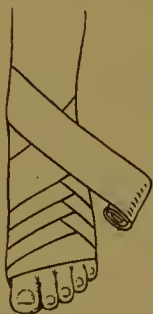


FIG. 14.



FIG. 15.



FIG. 16.

FIGS. 11 TO 16.—Bandage for lower limb.

can never be properly applied. If the bandage is to remain on the limb, the fixing turn at its commencement must not be forgotten. Lay the tail of the bandage across the great toe, the outer surface of it being next to the skin, then carry the bandage across the front of the foot to the outside of the ankle joint,

and passing round that, again cross in front. The bandage is then brought round behind the toes to the point at which it started so that a figure of eight is formed (Fig. 11). Make a simple or spiral turn round the foot, the lower margin of the bandage being just over the lower joints of the toes (Fig. 12). If the left limb is the one being bandaged, as the bandage goes under the limb it passes to the left-hand, and passing above outwards it is received again by the right. Because the foot now begins to grow thicker towards the heel, forming a cone, a simple turn of the bandage again would not keep in position; its lower margin would be looser than the upper and consequently it would readily slip downwards. To get it to lie smoothly and firmly over the part, it is necessary to make a reverse. Lay the bandage across the foot, and keeping it in position with the thumb or forefinger of the left hand, turn down the head so that a fold or, as it is termed, a reverse is made (Fig. 13). Go on in this way keeping the reverses in a line rather towards the outside of the foot until you come nearly to the heel. There it becomes necessary to use the figure of eight bandage. Lead the bandage round the outside of the ankle joint, and, coming from the inside, carry it across the front of foot and then under the instep, making the crossing of the eight lie in a line with the reverses (Fig. 14). This is the form of bandage used at the junction of two cones. A few simple turns of the bandage are applied round the ankle (Fig. 15), and, where the limb begins to grow thicker, use the reverse (Fig. 16). Finish the bandage with a figure of eight turn, and put in the safety pin in a position parallel with the margins of the bandage. Be careful that while you apply a firm, comfortable bandage you avoid over constriction of the limb. If the toes are blue, or inclined to become swollen, then the bandage is too tight, and requires to be removed and put on properly. When taking off a

bandage don't leave it hanging loose as you unwind, but gather it into a bunch, passing it from one hand to the other across and below the limb, as you remove it.

Bandage for the upper limb. The bandage used for the arm is applied just in the same way as that described for the lower limb. Make the forefinger take the place of the great toe, and, in making your fixing turn, lay the tail of the bandage over that, and across the back of the hand to the outside of the wrist, under that, and again cross the back of the hand to the upper joint of the small finger. After



FIG. 17.



FIG. 18.

Bandage for upper limb.

one simple or spiral turn round the fingers, use the reverse again as the hand becomes broader towards the thumb. The lower joint of the thumb corresponds to the heel, and so round this part of the hand a figure of eight turn is used. At the wrist, as at the ankle, the spiral bandage is the best, and, as the arm becomes thicker, use the reverse (Figs. 17 and 18).

This form of bandage is the one nearly always applied both to the upper and lower limbs, except in cases where bandaging is ordered for the cure or prevention of swelling. Then the figure of eight bandage is likely to give more steady and even

pressure. Where there is this swelling don't forget, before commencing the bandage, to place small pieces of cotton wool between the toes, so that the skin secretions may be absorbed. By attending to this, and by keeping the skin clean, you avoid chafing and tenderness, which is very apt to occur in these cases, and which, once it has arisen, is often very difficult indeed to cure. In applying the figure of



FIG. 19.

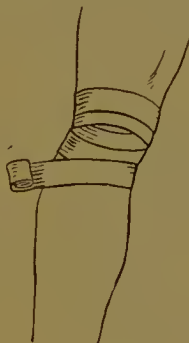


FIG. 20.

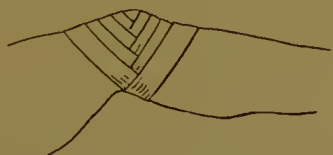


FIG. 21.

FIGS. 19 TO 21.—Divergent spica of knee joint.

eight bandage the loops of the eight pass round the limb, while the crossings lie in a straight line towards the outside.

To place a **bandage on a joint**, which will allow of movement and still remain in position, bend the limb and lay the tail of the bandage from the inside outwards round the centre of the joint. The second turn of the bandage then passes round a little below the middle of the joint, thus catching below it the lower, loose margin of the first or central turn. The third

turn is brought round the limb rather above the centre of the joint, so fixing the loose, upper margin of the first turn. Leave only a small surface of the first turn of the bandage uncovered, just at the centre of the flexed joint (Fig. 19). The fourth turn passes round the limb, covering in two-thirds of the width of the second, the fifth covers in two-thirds of the third, and so on (Fig. 20). In this way, after the central turn made round the joint, you have a series of figures of eight, each one larger than the last, the crossings

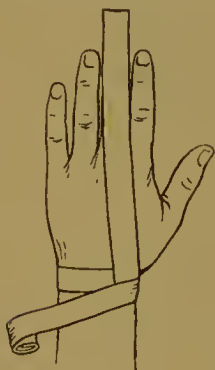


FIG. 22.

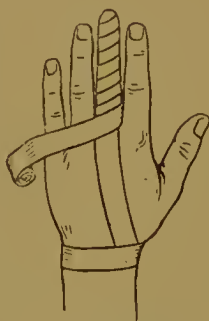


FIG. 23.

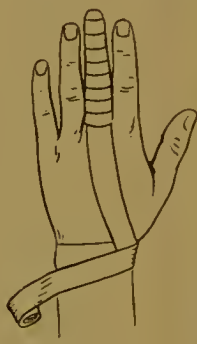


FIG. 24.

FIGS. 22 TO 24.—Bandage for finger.

being made in the bend of the joint, while the loops pass round the limb. This bandage is used mostly for the elbow and knee joints, and occasionally it is applied at the heel. When the whole limb is bandaged, in the case of a person who must be allowed to walk about, this bandage just described must be applied when you reach the knee joint.

Sometimes the manner of application is reversed, and, instead of causing the different turns to diverge from the central turn, they converge. A large figure of eight is made, its loops encircling the limb above and below the knee, and then each figure of eight becomes smaller, until the bandage is finished off with a central turn round the joint.

Bandage for the finger. Lay a turn of the bandage round the wrist, and then carry the bandage over the back of the hand to the tip of the finger to be bandaged. Come down over the palm of the hand, and take a second turn round the wrist (Fig. 22). Follow the first turn up to the point of the finger, and then make spiral turns round it to the web (Fig. 23). Again cross the palm as before, and finish with a turn encircling the wrist (Fig. 24).

Bandaging the head. Different forms of bandage are used for this, and perhaps the commonest is that spoken of as the **divergent spica of the head**. Hold the tail of the bandage in the left hand, about five inches from one side of the head. Pass the bandage first round the forehead and back of the head, and under the loose tail held in the left hand (Fig. 25). Bring it next over the top of the head, and under the chin. When it is brought under the chin it is carried over the loose tail from behind, passing above it forwards (Fig. 26). This third turn of the bandage divides the front portion of the head into halves, the fourth turn covers in the anterior margin of the third, and the fifth covers in its posterior margin. The sixth turn covers in the upper margin of the first turn of the bandage and the lower margin of the fourth, while the seventh turn covers the anterior margin of the second turn and the posterior part of the fifth turn. These turns are brought alternately under the chin and round the back of the head. The seventh turn, when it has passed over the top of the head, is pinned at the opposite side from that at which you have the free tail, then it is carried to the back of the head, and pinned there to the previous turns of the bandage. Next bring it straight over the head, and pin it, along with the loose tail, to the first turn of the bandage in front (Fig. 27). A few pins, or better still, a needle and thread, are used to keep this, and the various turns it crosses, in position.

The capelline bandage is one so often used that one scarcely feels justified in omitting it here, although it is not likely to be often required in ordinary home nursing. Sew two roller bandages together, and roll



FIG. 25.



FIG. 26.



FIG. 27.

FIGS. 25 TO 27.—Divergent spica for front portion of head.

one of those a little way over the seam so made, in order that the one bandage may be larger than the other. The larger is used to encircle the head, the smaller travels alternately backwards and forwards over the scalp. To begin, lay the loose part of the

bandage which intervenes between the two rollers over the forehead horizontally and low enough to cover the eyebrows, holding a roller in either hand. Bring those to the back of the head, and cause the larger or encircling bandage to pass over the smaller (Fig. 28). The latter is then carried right over the middle line of the head to the root of the nose, and the encircling bandage, passing round the forehead, crosses it (Fig. 29). It again crosses the scalp, diverging slightly from the centre of its first turn across the

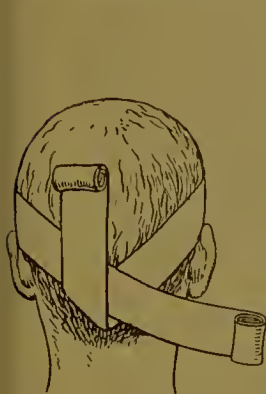


FIG. 28.



FIG. 29.



FIG. 30.

FIGS. 28 TO 30.—Capelline bandage for head.

head and covering the loose right-hand margin of this. The bandage passing round the head again crosses it at the back, and, held in position by this, it again crosses the head, diverging from the centre of the first turn, but this time covering in the left margin. After again being crossed over at the forehead by the horizontal bandage it passes backwards, covering in two thirds of the second turn, and being held in position behind by another turn of the bandage used to make the encircling turns. The fifth turn of the bandage over the head covers in two-thirds of the third, and so you go on until the whole surface of the scalp is covered. Finish with a turn of the encircling bandage

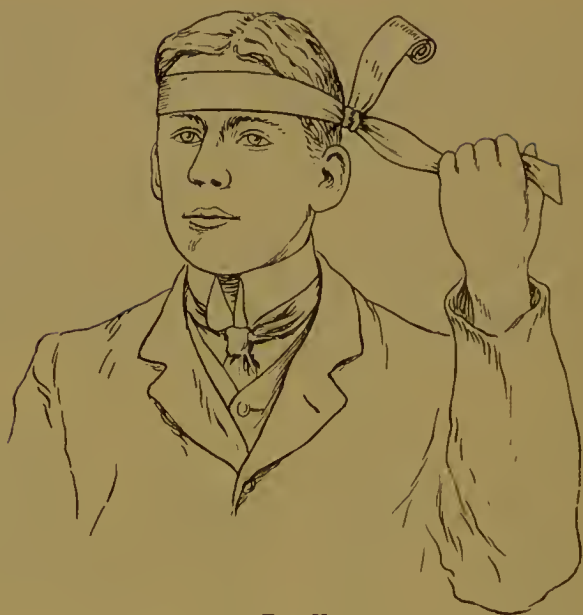


FIG. 31.



FIG. 32.

round the head, and pin in front of the forehead (Fig. 30).

A lighter bandage, and one more likely to be useful in home nursing, is that used in the Skin Department of the Edinburgh Royal Infirmary. It is a modification of the capelline, and being less constricting and heavy it is more comfortable, and not so apt to cause headache. To apply this bandage, hold the tail in the left hand at one side of the head, and lead the bandage horizontally over the forehead and round the head. Then pass it over and round the tail held in the left hand, and bring it round the back of the head (Fig. 31).

When it reaches the opposite ear get the patient to grip it about four inches from the head, and again pass round the back of the head (Fig. 32). Make a loop round the tail of the bandage by passing above and round about it, and lead the bandage round the forehead nearer the top of the head than the first turn



FIG. 33.

in this direction, so that you cover about two-thirds of that. Carry the bandage, close up to the head, over and under the loop held in the patient's hand. Take it next round the back of the head, covering in two-thirds of the last turn there, and again firmly encircle the free end in the hand. Now cover in two-thirds of the last turn in front, go round the loop at the side of the head and pass behind the head, covering in two-thirds of the last turn there. Again keep this turn in position by passing it round the tail held in the hand, close up to the head. In this way you go on, covering at last the whole scalp as the various turns behind and in front converge, and meet at last at the top of the head (Fig. 33). Finish

off with a circular turn round the head which covers in the loose tails of bandage round which you made those loops which keep the various turns behind and in front in position. If you get the patient to hold out the end of the bandage as well as the loop on the opposite side, then you can apply this bandage with much greater accuracy and quickness.



FIG. 34.—Eye bandage.

Bandage for the eye. To bandage the eye begin at the forehead and lay the bandage horizontally round the head first. The second turn is brought down over the eye and round the back of the head, while the third again passes round horizontally (Fig. 34). The fourth turn again covers the eye, and the fifth goes round the forehead. Thus there is alternately a horizontal bandage and one over the eye until you finish off with a turn encircling the head like the first. If it should chance that both eyes must be bandaged, then pass down, as described, over the first one, and going round behind the head bring the bandage up over the second eye. Then make a turn as before round the forehead.

Bandage for broken jaw. To make a jaw bandage get a strip of calico or domet, and cut in the middle of it a parallel slit for the chin. Then cut the extremities of the bandage with the point of the scissors, and tear it down on either side to about an inch, or an inch and a half, from the central slit. Tie these two ends so formed on either side once, to prevent them

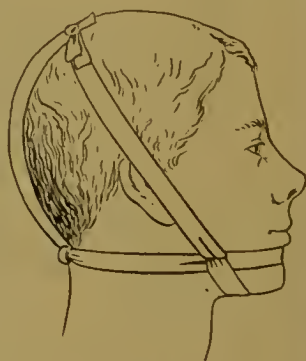


FIG. 35.—Jaw bandage.

from tearing farther. Put the chin into the slit in the middle of the bandage, and see that the slit is not too small or the bandage will not keep in position; neither must it be too large, and so it is safe to make it rather small at the commencement, and you can very easily enlarge it by tearing it a little if necessary. Carry one strip of bandage from either side to the top of the head, and tie them together with the reef knot, and tight enough to hold up the jaw in position. The two remaining strips



FIG. 36.



FIG. 37.

Breast bandage.

are tied at the back of the neck, and their ends are brought up and tied neatly with the loose ends of the first knot at the top of the head (Fig. 35). These three knots are quite necessary to keep this bandage in position, whether it be applied for the healing of a fractured jawbone, or, as is very often the case, to hold the jaw in position for a few hours after death. A strip of calico, with a hole cut in the centre of it and tied at the top of the head, is of very little use in such cases.

Breast bandage (Figs. 36 and 37). When a bandage is required to support the breast, pass it first round

the waist, and then under the breast and up to the shoulder of the side requiring to be supported. Again make a turn round the waist, and again another to support the breast. When a sufficient length of bandage has been applied to serve the desired result, finish off with a turn round the waist.

Should both breasts require support make the first two turns of the bandage as above. Then after

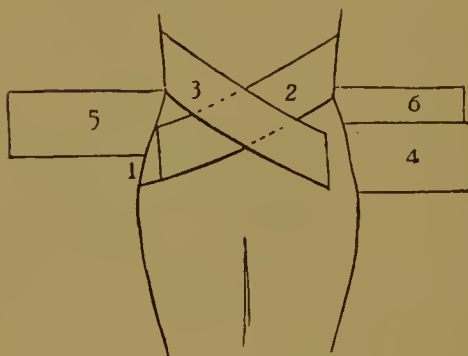


FIG. 38.

Many-tail bandage.

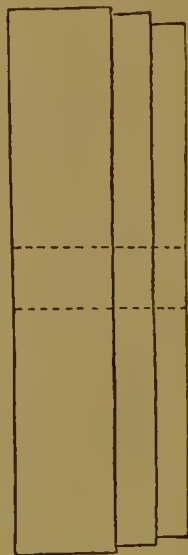


FIG. 39.

making a third turn round the waist bring the bandage up behind, and towards the front, over the opposite shoulder to that over which the second turn passed. Go across the chest and under the second breast, then round the waist as before, again from the front over the first shoulder, and so on until the necessary amount of support is applied.

To keep hot applications or dressings in position over the chest or abdomen the ordinary binder gener-

ally serves the purpose very well. In surgical cases the **many-tail bandage** is generally used for the abdomen, and sometimes for the leg in cases where, because the wound is very painful or for some other reason, you wish to avoid movement as far as possible. Cut a central strip of bandage according to the width which you wish to make the many-tail. Stitch across this lengths of bandage, each covering in about two thirds of the last, and placed at right angles to the strip cut for a foundation. Three lengths may be sewn to this, so forming three tails on either side of it,—four, five, or six strips may be used. Perhaps eighteen or twenty of those will be required if the many-tail is to be used for the leg. As already stated, the chief advantage of this bandage is that it entails little movement of the injured part. To apply it, roll up the various lengths towards the central portion and push this rolled part gently under the patient's back. Then, after having applied the necessary dressings, bring the top strip of bandage on the right side across the abdomen and downwards towards the lower margin of the many-tail. Next lay the lowest strip on the left side across the abdomen over this so that it terminates near the commencement of the first turn. The top strip on the left and the lowest on the right are passed over the abdomen in the same way. If the bandage has only three tails on either side, the central tails are made to pass straight over the abdomen, the one lying above the other, but if there are four, then the top strip remaining loose on the right side is made to cross towards the lowest on the left and that is laid over above it. Apply the two remaining loose ends and pin in front. Thus, in applying the many-tail bandage the upper lengths take a direction across the part and downwards, while the lower lengths are led across and upwards, an upper and a lower tail being applied alternately from opposite sides.

A **sling** is usually made of good, strong calico cut to form a triangle. When applying a sling, place its long margin toward the part which you wish to support. Thus, if the forearm is injured, lay the sling over the shoulder on the injured side with its long margin lying towards the hand. Place the arm comfortably in position, and then bring the sling up to the opposite shoulder. The two ends of it are then tied together in the reef knot behind the neck. Pin up the loose corner at the elbow to the sling on the under side of the arm (Figs. 40 and 41).



FIG. 40.

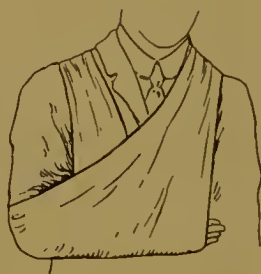


FIG. 41.

Sling as applied to support hand and forearm.

Should the elbow or upper arm require support, then the position of the sling is reversed. Again lay it first over the shoulder of the injured side, but this time place the long margin nearest the elbow. Put the arm in the position in which it is to remain, and, again bringing the loose end round the arm and over the opposite shoulder, tie the sling behind the neck. The loose corner is caught up under the arm and fastened neatly by means of a safety pin (Figs. 42 and 43). Sometimes the narrow sling shown in Fig. 44 is applied.

This sling or triangular bandage is sometimes used to retain dressings in position when a roller bandage is not available. Illustrations are given, showing the

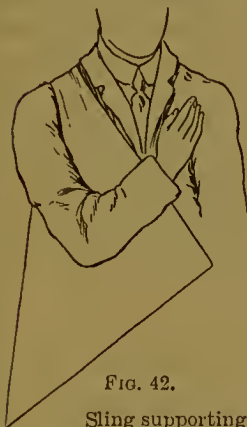


FIG. 42.

Sling supporting elbow and upper arm.



FIG. 43.



FIG. 44.—Narrow sling.

manner of its application to a limb and to the scalp. In the latter case the long margin of the triangle is laid over the forehead, and the ends cross one another

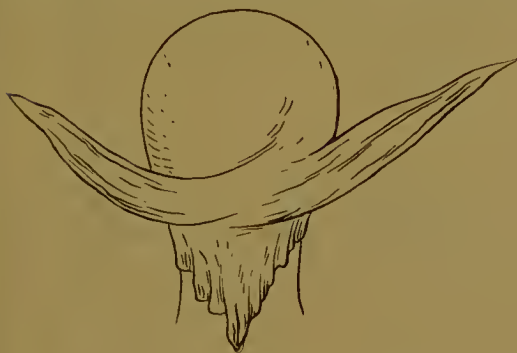


FIG. 45.

Triangular bandage applied to head.



FIG. 46.

at the back of the head, to be brought round and tied together in front of the forehead. The loose corner of the triangle behind is then brought up and safety pinned neatly at the top of the head (Figs. 45 and 46).

In Fig. 47 the triangular bandage is shown as applied to a limb.

The reef knot. This is the only knot likely to be required in home nursing. To tie it, hold the extremities of the bandage or sling in either hand, and

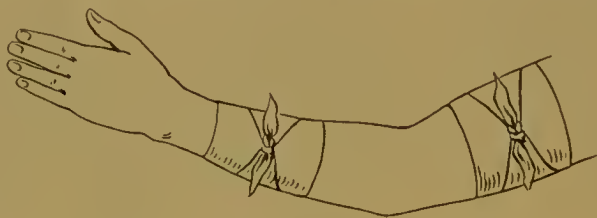


FIG. 47.—Triangular bandage applied to limb.

bring that held in the right from behind the other, over it and under. Then the same end, now, however, held in the left hand while the other is in the right, is again brought over towards you and passed under the end held in the right hand (Fig. 48). Tighten this knot up properly and it will not “give,” as the “granny” knot is very apt to do. When properly tied the two loose ends should lie parallel with the



FIG. 48.



FIG. 49.



FIG. 50.

Reef knot.

“Granny” knot.

main portion of the bandage (Fig. 49), while in the case of the “granny” knot they lie at right angles with this (Fig. 50).

The clove hitch. Occasionally it becomes necessary to use this in order to prevent children from scratch-

ing the affected part in cases of eczema, or, in fracture cases, from interfering with their splints. The clove hitch is made as follows: Have the right hand prone, with the bandage laid over the back of it and then across the palm. The left hand should be supine, with the bandage simply lying across the palm. Then turn the palm of the right hand upwards and that of the left downwards, slipping the two loops so made on to one hand. Pass those over the wrist and tie the ends of the bandage to the sides of the bed, leaving the patient as much length as you can without allowing him to be able to reach the affected part.

CHAPTER XV.

POULTICES, FOMENTATIONS, AND COUNTER IRRITANTS.

Linseed poultice. Moisture and heat can be best applied to a part by means of a poultice, and linseed meal is quite the best thing of which to make it. The oil in this helps in retaining the heat of the application, and acts as an emollient for the skin as well. Be sure that you have everything which you will require in readiness before commencing to make your poultice, and close the windows while poultices are being made and changed. A binder, with two short straps of flannel sewn to its upper margin behind, is rolled under the patient's chest, ready to be brought round and pinned in front, when the poultice has been put on. Have safety pins lying ready near the bed to fasten it with. Besides these, you require a large thick sheet of cotton wool warmed in front of the fire beforehand, a piece of mackintosh (jaconette) larger than the poultice, and a piece of flannel. A deep bowl is used for mixing the poultice in, and if you have a spatula to stir and spread it with so much the better, if not, then use a bread knife. If you have a jug of boiling water by you, to dip the knife into while you are spreading the poultice, you will do this more easily, and the little added moisture will help to take the place of that which is being lost by evapora-

tion. See that your kettle is *quite* boiling, and, when everything is ready, make your poultice.

First rinse the bowl or basin with boiling water to warm it thoroughly, and then put into it the amount of water required for your poultice. Next gather the linseed up in the palms of the two hands held together, and put it into the water. Stir up the water and linseed meal together very quickly, adding with the left hand whatever more linseed may be required. Notice that you do not require to sprinkle the linseed in while stirring; thrown into the water in handfuls as described, it does not get into knots, and the poultice will be hotter because more quickly made ready. People are apt to put in too much linseed meal for the amount of water used, I find, and so the poultice is made thick and dry. It is important to remember that, when a poultice is ordered, it is with the idea of applying moisture as well as heat to the part, and if you put too much linseed into the water the patient is deprived of some of the moisture which he should have. The best guide as to when the proper amount of meal has been added is found in stirring the poultice. As soon as you find that the mixture is coming freely from the sides of the bowl without sticking to them, then linseed in sufficient amount has been put into the water. See that you have stirred the mixture properly from the bottom of the bowl, because it is very apt to remain soft and moist there; then turn it out on the flannel, and spread it lightly over this with the knife which you used in stirring. Dip your knife once or twice, while spreading, into the jug containing hot water, and don't make the poultice more than about $\frac{3}{4}$ of an inch thick. You do require to have it of a certain thickness in order that it may the more readily retain its heat, but, if so thick as to be heavy, it may add to difficulty in breathing. When you have spread your poultice, fold in the margins of the flannel about an inch all

round over it, and tack those down quickly at the corners with a darning needle and thread previously put in readiness, or small safety pins put in from behind. When the patient is apt to be restless put a layer of muslin above the linseed before laying in the margins. Sometimes a poultice is spread on tow instead of flannel, but this is more difficult to manage in the home, and it is apt to prove irritating to the skin at times. I am often asked whether a layer of muslin ought not to be placed over the linseed to intervene between this and the patient's skin. If, however, the poultice is well made, the linseed does not stick to the skin, and so muslin is unnecessary. Then there is, too, a popular idea that oil ought to be spread over the surface of the poultice, but this also is superfluous, because there is sufficient oil in good linseed meal. It is best as a rule to prepare the poultice in the sick-room, and when it is ready you carry it on its jaconette and cotton wool to the patient's bed. Put it against your own cheek before applying, in order that you may be quite sure that it is not so hot as to cause burning, and, as soon as you know that the patient will be able to bear its heat, lay it over the area to be poulticed. The poultice lies in contact with the skin, above it is the jaconette larger in size, and over this the thick soft cotton wool larger than either. Lay the ends of the binder, previously placed under the patient's chest, over this and fasten those with safety pins. The two straps are brought over each shoulder from behind, and pinned to the binder in front to help in keeping everything in position.

Usually the poultice is changed every three hours, and see that the fresh poultice is ready before you remove the old. The safety pins may be taken from the binder just before you prepare the other one, but leave the poultice itself over the chest until the moment when the new poultice is to be put on. In

this and every other way you can think of, avoid all risks of chill to the patient while changing poultices. The part which is being poulticed should be quickly and carefully sponged over with warm water once in every twenty-four hours, and thoroughly dried.

When told to put on a "jacket" poultice—*i.e.* one which will encircle the chest—lay the binder under the patient as before, and make the poultice for the back of the chest first. Turn the patient on the side, and apply this, under its own jaconette and cotton wool, keeping it carefully in position while you turn the patient round on the back again, so that he lies above it; next make the poultice for the front of the chest, and apply that under jaconette and cotton wool. Bring the binder round and pin it in front, fastening the straps over the shoulders. When pinning the binder over the poultice, make the upper and lower margins rather tighter than the central portion, because in this way the appliance remains in position better. People very often ask me about heating up old poultices, but I consider that an entirely new poultice should be made each time. When poulticing is no longer necessary, a gangee jacket is put on the patient; the material for this can be procured from any chemist, and consists of a thick layer of cotton wool sandwiched between gauze. Such a jacket is very useful in many other cases besides those which have been poulticed. We put one on the patient in most cases of lung ailment, in heart cases, in those of acute rheumatism, in Bright's disease, in cases where there is a condition of collapse after an accident, when the patient is old and feeble, and after a serious operation. To make the jacket, about a yard of material should be procured, and a hole large enough for the patient's neck is cut in the centre. Cut the material along one shoulder, and then bind all the raw edges loosely with a strip of muslin bandage.

Tapes are sewn on at the part where you cut the material at the shoulder, while at the two lower corners of the back small loops of tape are made. To either corner in front long pieces of tape are sewn. Before putting the jacket on the patient, hold it in front of a fire for some time, so that it may become soft and thick and warm; then, turning the patient on the side, place one half of the jacket smoothly over the back, lay him on the back again, and put the front portion of the jacket comfortably over the chest. Tie front and back together at the shoulder, and, passing the long tapes, sewn to the foot of the jacket in front, through the small loops of the back portion, bring them towards the front, and tie them together. Two gamgee jackets like this ought to be made, in order that the patient may have a fresh one night and morning. See that each is thoroughly aired when not in use. If the patient perspires a great deal, they must be changed much oftener. If gamgee tissue cannot be had, a thick layer of cotton wool on folds of flannel may be used in place of it.

Mustard poultice. When this is ordered, the doctor usually means it to be made in the proportion of 1 part mustard to 2 parts of linseed meal. I have seen people prepare a mustard poultice by mixing the mustard and linseed together, and then stirring these, as described above, into the boiling water. This is quite wrong. If mustard is put into boiling water, its minute cells shrivel up, and the effect of it is less active; when mixed with cold, or at least with tepid water, the walls of the cells burst open so that you get added heat from the application. Therefore, first mix the necessary amount of mustard smoothly in a little tepid water; then, after warming the bowl, pour the boiling water into it, and add the linseed; next stir in the mustard previously prepared. Spread the poultice on flannel, and apply under jaconette and cotton wool as before. The proportions given are those

generally used; but after the poultice has been in position for a little, a corner of it ought to be turned up to see that it is not blistering the skin. It is intended to redden this, but never to blister. Individual skins vary greatly, and one will blister with those proportions when most others will not, hence the necessity for observing the effect of the application on the skin in individual cases. Children of course require to have a mustard poultice weaker in strength as a rule than that prepared for an adult; therefore, you use mustard in a smaller proportion than a third in making the poultice for a child.

When a mustard poultice is no longer necessary, rub gently any particles of mustard from the skin surface and cover it up quickly with the gamgee jacket, because the stinging effect of the mustard is much more severe when the skin is exposed to the air. Very often I find that the doctor bids one put on a mustard poultice first, and follow it up with ordinary linseed poultices.

Mustard plaster. To make this use 1 part of mustard in 2 parts of flour, and when adding the mustard to the flour, be careful to rub it between the palms of the hands, otherwise you will have small lumps of mustard in the plaster, which will prove too irritating. When the mustard and flour have been well mixed together, make them into a smooth paste with cold water. Spread this on brown paper, lay a piece of muslin over the plaster, and fold in the margins of the paper over this all round. Warm the application a little by holding it in front of the fire, and put it on to the part for which it has been ordered. When no longer required, see that you gently rub away any trace of mustard from the skin, and cover it up as quickly as possible. Sometimes, but very rarely, you are told to make a mustard plaster with mustard and water only; usually a proportion of flour is added.

Mustard leaves are now very often used instead of the plaster described above. Wash the skin surface over which the leaf is to be applied, then moisten the face of the leaf in a little tepid water and apply. If you are putting it on a child's skin, let a layer of muslin intervene between the leaf and the skin surface. The chief drawback in regard to the use of mustard leaves is that some individuals find them very irritating, so that at times they are removed before they have had time to do real good. A mustard leaf ought, as a rule, to be kept on for twenty minutes. Sometimes in cases of apparent collapse in heart cases, or after an accident, we can, besides giving the usual stimulants, apply with some benefit to the patient a mustard leaf, or, if that does not chance to be at hand, a hot fomentation made as described below, over the heart.

Charcoal poultice. This is ordered sometimes for a very foul, wounded surface. Mix 1 part of charcoal in 5 parts of linseed, then make as you would an ordinary linseed poultice, spread it on old linen instead of flannel, cover with very thin gauze and apply to the part, putting a thick layer of cotton wool and a bandage above.

Yeast poultice. Mix nearly a pound of linseed in half a pint of yeast. Stir this gently in a saucepan over the fire until it is properly warmed, and spread it on a cloth.

Bread poultice. Put some stale bread into a saucepan with boiling water for five minutes. Strain off the water and spread the bread on old linen.

Starch poultice. This is ordered very frequently in certain diseases attacking the skin, and often for dirty, discharging ulcers. For making a starch poultice the best wheaten starch ought, as a rule, to be procured from a chemist. This is expensive, however, and for some cases the ordinary household starch will serve the purpose very well. Then get Orlando

Jones' starch, as that is usually the best to use where the making of a starch poultice is concerned. The quantity of starch prepared will depend upon the size of the poultices ordered, and the frequency with which they are to be changed; sometimes four tablespoonfuls of dry starch is prepared for poultices at one time, sometimes eight, twelve, sixteen, or even twenty. For every four tablespoonfuls of starch, one teaspoonful of boracic powder is added. Rub this in the palms of the hands to get rid of any lumps, and then mix it thoroughly into the dry starch. Next add cold water to the starch, and mix it with a wooden spoon to a thick, smooth cream. This is a very important part of the making of a good starch poultice, and some time must be given to it in order that you may be sure that the starch is smoothly and thoroughly mixed with the water. Don't allow any dry starch to remain about the sides of the basin. Be careful, too, not to add too much cold water; or, when the hot water is added, the starch will not thicken; as I have already said, just have it of the consistence of thick cream. When you are quite sure that the starch is properly mixed with the cold water, ascertain whether your kettle is quite boiling, and grasp the handle of it with a holder, otherwise you may be forced to put it down while you are pouring, and then the poultice will not be properly made. Keep on stirring the starch from the bottom of the basin, while you add the boiling water as quickly as it will come from the spout of the kettle. When you see the starch change colour slightly, put down the kettle, but continue to stir the starch vigorously for some time. A wooden spoon is the best to use for stirring, because this usually has a long handle, and so hot drops of starch don't reach the hand. When you finish stirring, lift out a spoonful of the starch and allow this to drop off the spoon; if it does so without any shaking your poultice is probably just of the

right consistency; if you require to shake the spoon to cause the starch to fall back into the basin it is well to add a little more boiling water, and beat this well into the starch. Of course the poultice must not be so thin as to be almost fluid, but neither must it be too thick, because then it will be less cleansing than when fairly soft. When prepared in this way, the starch should be as smooth and soft as very thick gruel. If it has the appearance of tapioca something is wrong—either your starch has been badly mixed with cold water at the commencement, your hot water has not been quite boiling, or the pouring of this into the starch has been interrupted. It may be too, that while adding this you have not stirred quite so incessantly and vigorously as you ought to have.

When the starch has been prepared, cover the basin with a clean towel, and set it aside to grow cold. When applying a poultice, spread the starch about $\frac{1}{2}$ inch thick smoothly on old linen, and cover it with soft muslin, previously washed, whether it be new or old. Fold in the margins of the linen neatly over this. Usually the starch poultice is applied cold, but in the case of old people and children, or when it is to be applied over a large surface, it is just as well to warm it a little. Sometimes we are told to change these poultices every four hours, sometimes twice daily.

Hot fomentations. Moisture and heat can most conveniently be applied to a part by means of these. Again see that you have everything ready, before commencing to make your application. If you are to apply the fomentation to the chest, have the binder in readiness under the patient. If it is to be put on a joint, have a bandage ready by the bed. You will require a sheet of cotton wool, well warmed, and jaconette to cover the fomentation with. Place a strong kitchen towel, or, if you have it, a wringer made from packsheet, in a basin; then a piece of

flannel, probably a yard, is folded up to the size of the surface to be fomented and laid in the wringer. Pour water, which must be quite boiling, over this, and then grasping the dry ends of the wringer in the hands, twist those round and round very quickly, wringing the water out of the flannel in this way. Be quick in doing it, but at the same time, don't be content until you have wrung every possible drop of water out of the flannel, because, when you are particular in regard to this, the fomentation will be much less likely to burn your patient, it will be more comfortable, it will keep hot longer, and it is less likely to cause the clothing to become damp.

Carry the fomentation to the bed, still in the wringer, and covered by the jaconette and cotton. Then remove it from the wringer, spread it on the jaconette, which must be larger than the folded flannel, and after ascertaining that it is not so hot as to burn the patient, apply it to the part. Some additional heat and moisture will be obtained for the patient if, before it is quite cool enough to allow of his being able to bear it in close contact with the skin surface, you spread it above the palms of your own hands, and let these intervene between the fomentation and your patient's skin. Keep on moving them under the fomentation so that no part of it may be allowed to touch the skin for more than a moment until the application is at last cool enough to rest against the skin, then bring the binder round over the cotton wool and safety-pin it. The intervals which intervene between each fresh fomentation vary; sometimes we are told to change them every four hours, sometimes every three hours, or, it may be, every two hours. When fomenting the throat change the fomentation every hour, and when applying fomentations over the heart in cases of collapse, change them just as quickly as you can make them. When such applications are no longer required by the patient, put on a gamgee jacket if the chest

happens to have been the part fomented, or, if it chance to have been a joint, apply a thick layer of cotton wool and keep this in place with a bandage. Hot fomentations are very often applied to relieve pain, and when this is so they ought to be changed very frequently.

Turpentine fomentation. After pouring the boiling water over the flannel, and before wringing it, put a little turpentine (from 1 to 2 tablespoonfuls) into the water. People occasionally sprinkle this over the flannel after it is wrung and removed from the wringer, but this is a dangerous method, because it is apt to cause blistering of the patient's skin under those parts where the turpentine has most collected in the flannel.

Laudanum fomentation. After removing the fomentation from your wringer, sprinkle a little laudanum over the surface which is to go next to the skin. Sometimes lead and opium lotion is used instead of laudanum.

Vinegar fomentation. Wring the flannel this time from hot vinegar. This fomentation is sometimes used over the throat in cases of croup, and special care must then be exercised to avoid risks of burning the skin.

Spongio piline. This is a thick woollen material with mackintosh on one surface of it. Hold it in front of a fire and make it as hot as the patient can bear it. Apply the woollen surface to the part and cover it with a thick layer of cotton wool or folds of flannel. Keep in place with a bandage or binder.

Note that, in connection with all hot applications, great care must be observed, because, while being put on as hot as the patient feels that he can bear them, you must still be on your guard to avoid all risks of burning, or a very troublesome sore may result. More especially one must remember to be careful when the patient happens to be a little child, or a person who is paralysed, or unconscious.

Ice poultice. Sometimes this is ordered in cases of pneumonia, or pleurisy. Get a piece of gutta-percha

tissue twice as large as the poultice required. Lay over one-half of this a layer of dry linseed meal, and above this sprinkle some common salt. Crush some ice very small and lay it about half an inch thick over this. Sprinkle some salt above this again, and then put on another layer of linseed meal. Quickly lay the free half of the gutta-percha tissue over this, fold the margins over double all round, and fasten them down with turpentine. Put a piece of lint between the poultice and the patient's skin, and keep the whole in place with a binder, or many-tailed bandage. This poultice will require to be very frequently renewed, and it must be examined frequently in order that it may not become a warm, instead of a cold, application. An ice bag is more often used than an ice poultice (see chapter on sick-room appliances).

Blisters. For these we are sometimes told to paint on some blistering fluid, and sometimes a small blistering plaster is used.

Before applying a blistering fluid wash the skin thoroughly first to remove the natural oils from it. The doctor will have pencilled off the area which is to have the fluid applied to it, and you place vaseline round the outside of this. Then paint on the fluid sparingly at first, because the skin may be one which blisters readily. It is wrong to rub a blistering fluid into the skin. Sometimes the fluid is painted on a second time after the first application has dried, and then the part is covered with gutta-percha tissue, and cotton wool kept in place by means of a bandage or by adhesive strapping. The time which a blister takes to rise varies very much in different individuals. Sometimes you find it form in two hours, while in other cases it will take twelve. Usually it requires about eight hours, but if you find that it has not formed after twelve hours put on a hot fomentation. If the blister is a large one it will require to be snipped in several places, and choose those parts in

which the fluid has most collected. Use a sharp, clean pair of scissors, and dip them into boiling water immediately before you use them. Let the fluid escape into cotton wool, and then dress the blister with some ointment spread on the smooth side of white lint. Equal parts of boracic ointment, lanoline, and plain vaseline make a good ointment for dressing a blister with; change this dressing night and morning. Very likely when you apply the second dressing you will find that one or more blebs or blisters have formed again, and these must be cut as before.

When the blister is to be raised by means of a **plaster**, wash the parts as for applying the fluid, and, if it chance to be at hand, a little turpentine may be used to rub the skin. The plaster should previously be cut to the size ordered, and before applying it put the faintest suspicion of olive oil over that surface of it which goes next to the skin. All nurses do not agree with me in regard to this, because they say that when oil is used the blister is apt not to rise so readily; a very little oil, however, does not, in my experience, interfere with this, and the plaster is removed afterwards with much less discomfort to the patient, I find. Above the plaster you place a very thin piece of cotton wool, and usually the application can, most securely, be kept in position by strips of adhesive plaster passed above the cotton wool and adhering to the skin surface beyond the margins of the plaster. Occasionally it is kept in place with a bandage, but whatever is used see that the plaster is securely fixed, otherwise it may slip from the part where you were told to apply it, so that a blister forms at the wrong place, probably doing harm instead of good. If the skin has not blistered in twelve hours put a hot fomentation above the plaster to cause it to do so; then, when the blister has formed, hold a piece of cotton wool under it, just as when a blistering fluid has been used. Dip the points of a pair of scissors

into water which is boiling, and snip the blister at that part where the fluid has most collected in it. Dress night and morning as described above.

Sometimes iodine liniment is ordered to be painted over part of the skin surface, either to encourage absorption, or to relieve pain. Pay careful attention to the directions which the doctor gives for the use of this, and particularly observe how often he orders it to be applied. Watch the appearance of the skin when this treatment is used, because it is very apt to become tender, and if it breaks will be difficult to heal.

Setons. Those are rarely used. A piece of silk is drawn through the skin, and you will be told to draw it backwards and forwards a few times in the day to keep the small wound open. Keep the two ends of the silk tied together, and when handling it see that your hands are very clean. The part must be kept covered with fresh, clean lint and cotton wool.

Leeches. Those are ordered at times to draw blood from some part of the body, and so relieve inflammation and pain. Wash the patient's skin carefully with soap and water, and then with plain water to remove the soap. Then put a little milk and sugar, or water and sugar, on the spot where you wish it to bite. The less you handle a leech the more readily it will bite, and so, unless you wish it to bite at one exact spot, just place it in a small wineglass, and turn this upside down over the part on which the leech is to be applied. When it has fastened itself on to the surface of the skin remove the glass.

When a very small spot is marked upon which the leech is to fasten itself a small test-tube is nearly filled with cotton wool, and the leech is put above this. The tube is then held firmly over the exact spot where it is to take hold. Sometimes the thick part or body of the leech is simply held in a soft cloth, and the sharp end—the head—is directed on to the spot

where you wish it to bite. Notice that you don't apply it just over a vein. When it has taken hold a handkerchief is laid under the body of the leech and spread out on the bed, so that when the creature drops off it will fall into this. You must never leave a patient while the leeches are on, or they may get lost in the bed, causing the patient uneasiness, and being often extremely difficult to find again. Usually the leech adheres to the part for about half an hour; after that interval it will be about twice as large as it was when applied, and if it does not drop off of its own accord a little salt should be put on it, and then it will fall off. Never try to pull it off, or its teeth may be left in the wound. When it falls off the leech must be destroyed by putting it into a basin with carbolic lotion, and, when it is dead, into the fire. If the doctor wishes the bleeding to stop when it has dropped off, place a pad of fresh lint over the bite and bandage it on. Usually this will stop the bleeding, but if not place a clean finger over the wound for a little, and as a rule the doctor gives you something to use if the bleeding prove very obstinate. When he wishes the bleeding to continue after the leech has fallen off, a warm fomentation is often put over the wound.

Cupping is performed in two different ways, spoken of as dry, and wet, cupping. It is only the former that you will ever be asked to do in home nursing, as the doctor always does wet cupping himself. Special cupping glasses are to be had, but those are not as a rule available in the home, and so wine glasses are often used instead; sometimes I have done it with a medicine glass. Put a little methylated spirit into each of the glasses to be used, and saturate in this pieces of blotting paper about an inch square. After rinsing the whole of the inside of the glass which is to be applied, pour the methylated spirit from it, and holding it upside down carefully dry its

margins. A very little vaseline may be rubbed over the rim of the glass, and then the moist blotting paper is placed against the inside of the glass. See that you have it fixed securely against this, or later it may fall down and burn the patient's skin. Next you apply a lighted match or taper to the inside of the glass, and then, before its edges can be too hot, you turn the glass upside down, pressing it firmly and gently against the patient's skin. The tissues then begin to rise, until they nearly fill the glass. Keep the glasses on for ten minutes, or a quarter of an hour, and then remove them by inserting a finger under the rim of each. Very often we are told in certain cases to apply these cups to the back over the kidneys. Be very careful not to bring your taper too near to the patient's clothing, and, as already mentioned, see that the rim of the glass is properly dried and that the blotting paper is sticking firmly to the side of it, or the patient's skin may get burnt.

CHAPTER XVI.

SICK-ROOM APPLIANCES.

Steam tent. In cases of eroup and other diseases of the respiratory organs the patient is made to breathe warm, moist air by means of the steam or, as it is sometimes called, the bronehitis tent. It is usually considered suffieient to put the tent round the upper portion of the bed; if made almost completely to enelose the bed, as some years ago it was, the air inside the tent rapidly becomes vitiated, and so much more harm than good is done to the patient. For the tent itself sheets and an old-fashioned, wooden clothes-horse are required. If the bed is broad, one having four leaves will be neecessary, but for the ordinary single bed three leaves, if they are of the usual breadth, will be sufficient. Drawing pins are used to secure the sheets, which are neatly hung all round the clothes-horse first, and the screen so made is placed round the top of the bed. Next a narrow sheet is hung over the top of the screen, slightly overhanging in front, so that it forms a sort of eanopy over the bed. Notiee when you put this above the screen that the two side leaves of it are further apart in front than they are behind, to allow of your being able to get inside the tent to attend to your patient's needs when necessary.

A steam kettle, specially made for the purpose, is generally used when this kind of treatment is ordered,

but should this not be available a tin or enamel kettle placed over an ordinary spirit lamp will do very well. Occasionally the kettle is simply put on the fire, but this is usually inconvenient, as you wish to direct the steam inside the tent. A piece of stiff strong paper is next rolled up to form a tube, and this is tied to the spout of the kettle. Kettle and spirit lamp must be placed upon a chair or stool at a height that will bring the current of steam from the spout just to

the level of the patient. In this way the steam is directed into the tent, but it must not reach this at a point too close to the patient's face. It is of course important that you should see that the spirit lamp is not too near the linen on the bed, and that the position of kettle and lamp is secure, or a very serious accident may result.

Do not be content until both are perfectly steady, and have them placed at that side of the bed where people are least apt to knock up against chair or stool. If you are using an ordinary kettle don't allow the water in it to be above the opening to the spout, or the steam will escape round the lid instead of through the paper funnel. Usually steam is used alone, but sometimes you are told to add some drug, such as eucalyptus, to the water which is in the kettle. Always have a second kettle of water boiling, in readiness to replenish that by the bed, because if cold water be used for this the current of steam is interrupted. The purpose in erecting the

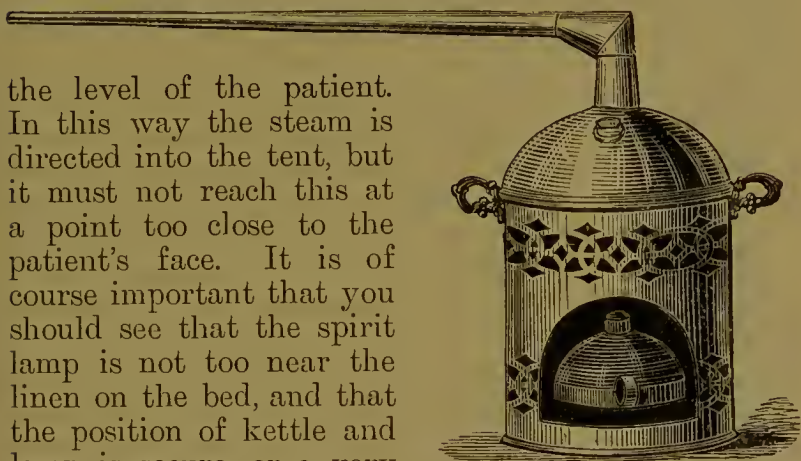


FIG. 51.—Steam kettle.

tent is of course to concentrate the steam round about the patient. When you are told to stop this treatment remove the kettle and lamp, but leave the tent for a day or two, that the patient may become gradually accustomed to the change.

Inhalations. Remedies are frequently applied to the air passages by means of inhalation. Very often steam is used alone, but sometimes the vapour is made sedative, or antiseptic, by having some drug added to the boiling water. The best time for an inhalation is at night, but at least one should avoid going into a cold atmosphere after one.



FIG. 52.—Inhaler.

Many good inhalers are to be had, and that most commonly seen is made of china. It has a large cork which can be removed to fill the vessel, and that is pierced by a bent glass tube which the patient puts to the mouth when inhaling the steam. A spout at the side of the inhaler provides for the admission of air. When you fill this with boiling water, and give it to your patient, wrap it in a shawl or a piece of flannel so that the patient may be able to hold it comfortably, and do not have the water in the inhaler higher than the tube which allows air to enter. Place the inhaler in such a position that this tube is on the side farthest from the patient's mouth. It is not, however, necessary to buy an inhaler specially made, as quite a good one can be improvised from appliances which can be had in the home. A teapot makes a good inhaler, and the patient breathes the steam from its spout; and a very good way in which to give an inhalation is by means of a large jug which has a little spout at the top of it. Place the boiling water in the jug, and then cover the top, all but the spout, with a towel. The patient puts his mouth over the

spout, and takes seven or eight inhalations of the steam, then he withdraws the mouth just for a moment, and again takes the same number of inhalations, proceeding in this way until the water has grown so cold that no steam comes from it.

Little inhalers (Dr. Burney Yeo's) are made of zinc to fit over the patient's mouth or nose. They contain a piece of sponge, and fasten round the neck. The drug to be inhaled is dropped on to the sponge, and it requires to be renewed about every quarter of an hour. Sometimes inhalations are given in the form of fumes from cigarettes, or powders. When powder is used it is placed on a plate, and a sheet of foolscap paper is folded to form a cone. See that the base of the cone is large enough to prevent its coming into close contact with the powder laid on the plate. When this funnel has been made, the powder is lit, and it is placed above this. The plate is put in such a position that the fumes from the powder escape from the narrow, upper end of the cone, just under the patient's nostrils.

Spray. This is a simple contrivance by means of which fluids are made to reach the throat in the form of a fine spray. The fluid is put inside a glass bottle, and it is sprayed from this by contracting an india-rubber ball held in the hand, and attached to the apparatus by a tube. Unless you are careful to have the tongue depressed, and to instruct the patient to draw in the breath at the moment when the spray reaches the mouth, most of it will collect on the tongue, and never reach the part for which it was intended. A spray having a single ball is very easily managed, but when one with two balls is used the spray is more continuous.

Ice-bags are ordered for the head in cases such as meningitis, and concussion, for the chest in cases of bleeding from the lungs, painful pleurisy, or pneumonia; for the abdomen in cases of internal hæmorrhage,

appendicitis, and some other ailments; and occasionally for the limbs in cases of swelling and inflammation from fracture, or abscess. An ice-bag is usually round or oval in shape, and has a serewing-in stopper on its upper surface. A good sponge bag often serves the purpose equally well, but be careful when using this that there is no leakage. Only half fill the ice-bag, and break the ice into pieces no larger than a



FIG. 53.—Ice-bag.

walnut. When putting in the cap or stopper, contract the ice-bag by squeezing the empty part of it in the left hand. In this way air is excluded, and the bag can be the more easily and comfortably kept in

position. Be very careful to keep the ice-bag constantly refilled, because the ice soon melts, and so the application becomes a hot instead of a cold one, doing more harm than good. The doctor will have a very poor opinion indeed of your nursing if at any time he calls and finds heat applied in this way in place of the cold treatment which he ordered. Never expose more of the chest than is necessary when you are applying an ice-bag, and always dry the skin before putting on the ice-bag. If it is applied to the head, the hair will prove sufficient to prevent the skin from becoming sore, but when ice is applied to any other part of the body a piece of lint must be put between the bag and your patient's skin.

Ice-caps. These are often used instead of an ice-bag for the head. They are made up of a coil of tubing so arranged as to fit the head closely like a cap. Iced water circulates through this from a can placed at a higher level, and after passing through the length of the tubing it runs into a pail close to the bed.

Directions for storing ice are given elsewhere.

Bed cradles. These appliances are used for keeping the weight of the bedclothes off the abdomen after an operation, or, more commonly in home nursing to prevent the bedclothes from resting on an injured limb. They are made in the form of an arch, and when you cannot have a proper eradle you can extemporise one sometimes by using one of the old-fashioned kitchen stools, or



FIG. 54.—Bed cradle or "cage."

one side and the bottom may be taken out of a wooden box or a very strong cardboard hat-box, and then this is placed over the part. As I have said elsewhere, pillows on either side of the body will help to avoid discomfort caused by weight of bedclothes.

Water-beds. These are sometimes useful in bad cases of paralysis, but although they are comfortable, because they give with the patient's movements and so prevent too great and continuous pressure on any part of the body, yet, being impermeable, they rather tend to cause moisture to collect in the sheets above, and so give rise at times to irritation of the skin surface. It is not as a rule necessary to choose a water-bed which will cover the whole mattress. One which goes across that to allow the patient's trunk and thighs to rest upon it is sufficient, and you make the bed level above and below it by using pillows. To fill a water bed, put in the cold water and then the hot. Have the water-bed pretty much of the same temperature as the patient's body, and when you think that you have sufficient water in it put in the stopper and lay it on the floor. Press down on it, then, with the points of the fingers of both hands, and if they can easily rest on the floor surface below, you have just the right amount of water in the water-bed; if

the fingers cannot rest on the floor you have put in too much, and when you can easily make both palms rest on the floor you have not quite enough. The patient is raised, while the water bed is put next to the mattress, with an old blanket above it besides the single one which is immediately below the under-sheet. It is a difficult thing at times to get in a water-bed, except in cases where the patient is light or able to move himself. Also it is bad for a water-bed to lift it when it is full, so when we must do this we lay it on a sheet or blanket and carry it to the bed in that. If two beds are available, however, it is best to fill the water-bed lying on the mattress by means of a funnel and a jug. Then the stopper is screwed in and the bedclothes arranged above it. When all is ready the patient is lifted over from the one bed into the other in the under-sheet, as I have described in Chapter V. Usually the heat of the patient's body is sufficient to allow the water bed to retain its heat for some time; but, if the patient is old or weak, it may grow cold, and so you must examine it from day to day. If it becomes too cold, raise the patient and draw it partially from the bed; then you will be able to pour off some of the cold water, and to add the amount of hot required to raise its temperature sufficiently.

Water beds are very expensive appliances, and we must be careful to do what we can to preserve them. When a water-bed is no longer required it ought to be well scrubbed and then rubbed with a disinfectant. It will last much longer, too, if, before putting it away, you blow a little air into it.

Air-cushions. Many varieties of these are to be had, and usually that made in the form of a ring to put under the lower part of the patient's back, is the one chosen. Often these add very greatly to the patient's comfort, and you can put as much or as little air into one as you find necessary to make it

suitable for the patient. When not in use, an air cushion ought never to be emptied and folded up; blow a little air into it, but otherwise leave it quite flat. A very good imitation of a cushion like this can be made with flannel, lint, or soft cotton or linen, and one or two pounds of "broad" bran. Lay a double piece of material on a table, and above this place a large hand basin upside down. Draw an outline of this in pencil on your flannel or cotton, and cut it round the markings so made. Next place a bowl again upside down, on the centre of this circle and outline that. When you cut out this central portion you have the material in the form of a ring. Sew it round the outer margin first and then turn the material so that the seam so made may be inside. Turn in the margin of the circle inside, and partially sew the two sides of the inner ring together. Through the opening left you pour in the necessary amount of bran to fill the ring cushion, and then the remaining parts of the margins of the inner ring are sewn together. Note that "broad" bran must be used; the smaller varieties contain a certain amount of powder, and consequently are liable to cause dust to collect more readily in the bed and about your sick-room.



FIG. 55.—Air-cushion.

Sand-bags are occasionally used to support and keep at rest, limbs which have been injured. Calico is sometimes employed for making the bag itself, but jaconette makes a much better material for the purpose. Usually those bags are long and narrow,

and they ought not to be filled too full, because then they are very rigid and unmanageable. See that the sand used is dry and fine.

Mackintoshes are expensive, hence the necessity for taking every possible care of them. All mackintoshes should be scrubbed once in each week, in order that they may be kept wholesome and quite clean. Lay a clean old sheet on the floor, or, better still, on a table; place the mackintosh on this and scrub *both* sides of it with a nail brush. Cold water will not make it clean and hot water would ruin it, and so warm water should be used, with plenty of soap. Remove the soap with a flannel and plain water; then wring your flannel, and with it dry the mackintosh so far as you can; then hang the latter up to dry. If there are stains in the mackintosh, a little ammonia in the water will help to remove those. After every dressing the mackintosh ought to be disinfected by rubbing it with 1-20 carbolic. If it chance to become stained when you are doing a dressing, put it into cold water until you can find time to wash it, in order that the stain may not dry in.

Spittoons. The patient's spittoon, or saliva bottle, must always be kept most scrupulously clean. It ought to be boiled occasionally in some old saucepan kept for the purpose, and ought to be washed in the morning, and again at night, in lysol and hot water; usually a small quantity of 1-20 carbolic, or some other disinfectant, is put into the spittoon to disinfect the expectoration.

Bed-pans. There are two forms of these, the round and the slipper. The former is used for male, the latter for female patients. Those made of earthenware are much the cleanest and best. Both can be passed under the blankets from the side of the bed. In passing the slipper bed-pan the patient lies on the back with the knees drawn up, and the covered portion goes under the back. Occasionally a woollen

cover is made for the bed-pan to keep the cold earthenware from contact with the patient's skin; but a thing like this only collects germs, and it is sufficient to warm the bed-pan under the hot tap before giving it to the patient. See that it is not made so hot as to burn the skin. Sometimes I find that it is more comfortable for the patient to place a warm, folded towel between the covered part of the slipper and the patient's back. Needless to say these utensils must always be kept perfectly clean, and ought to be washed frequently in hot water and lysol. They ought to be covered up, taken from the sick-room, and emptied as soon as they are removed, except just in those cases where the matter excreted must be kept for the doctor's inspection. Then it is poured into some vessel kept for the purpose, which at the end of the illness can be destroyed, and this is covered with a thick towel wrung in 1-20 carbolic.

Remember that burning the so-called disinfecting papers in the sick-room does not rid the air of impurities added to it by the excretions from the patient's body. Those papers are rather harmful than otherwise, because they mask the presence of impurity in the air, and so it is not removed. The only thing that will render the air of a room pure is open windows, although a sanitas spray, by means of which the fluid is sprayed through the apartment, may with some advantage be used as well.

Occasionally it happens that the doctor, or some visitor, is waiting to get into the sick-room, and then, when you wish to get rid of a disagreeable odour quickly, a little boiling water is poured into a saucer, and some drops of eau de cologne are added to this. Do not, however, imagine that this will do more than mask an unpleasant odour; windows must be opened as well.

CHAPTER XVII.

CARE OF THE DEAD.

THERE is often difficulty in knowing just what is required of the nurse in the home, when, in spite of the skill of the medical man and devoted effort on the part of the friends who have been nursing, death at last claims a victory. The fact that this is so has been frequently brought to my notice when people have come to me after my lectures asking questions on this subject, which is one that, on a platform, I think it best to avoid. This is my excuse for introducing into my little book on home nursing, a subject which must necessarily prove more or less harrowing.

When death has occurred the hour should be noted, the patient's limbs are laid straight, and the eyes closed. Usually it is only necessary to hold them so gently with the fingers for a little, but when this is not sufficient a small handkerchief is twice folded lengthwise, wrung in cold water, and laid over the closed eyes for a short time. The lower jaw is held up by a book, not large, but fairly thick, placed under the chin. This arrangement is much less likely to alter the expression of the face, than the tight, heavy handkerchief so often applied. Should anything like this be necessary, the jaw bandage shown elsewhere makes a much more suitable application. Lay the sheet over the face, and lift out any large pieces of coal from the fire to avoid the necessity for raking it

out when you set the room in order later. See that those pieces of coal are placed in a safe position. When all this has been done, those who are to perform the last duties in the sick-room, and indeed all who have been watching throughout the last hours should, if possible, have some food. This is quite to be looked upon as a duty, because, inevitably in such cases, there must be a considerable amount of nerve strain, both previous to, and after, a patient's death. At these times one has little appetite for food, but generally a little thin bread and butter, with some well-made tea, can be taken. Even when a person feels that it is impossible to eat, the effort should be made, in view of the work yet to be done.

Half an hour at least should elapse between death and the performance of the last duties to the patient; and meanwhile the articles likely to be required should be collected. These are much more simple than is usually believed to be necessary—a nightdress, a fresh pillow case, four strong towels, a fine handkerchief, a pair of clean sheets, and one small one or part of a large one. Then a basin with warm water with the patient's own sponge and brushes will be required. Remove the nightdress and sponge the patient quickly under the blankets, because in doing this one must ever show to the dead the same respect that one would give to the living. Treat your patient as carefully now as you have done throughout his illness. Let there be no rough handling or thoughtless, irreverent word or action. In many cases it is necessary to plug the intestine, and to do this narrow strips of cotton wool are passed into the bowel with the unsharpened end of a long pencil. This can quite well be accomplished without removing the covering laid over the patient. The habit, still so prevalent, of arranging the dead in a fantastic shroud only tends to make death seem more terrible and strange than it need, and a simple, white nightdress

which the patient has been in the habit of wearing looks so much nicer, and, as a rule, it is the only garment required. The old-fashioned winding sheet is now very much a thing of the past. To put on the nightdress pass the arms into the sleeves first, and then gathering the back of the nightdress into the hand pass this over the head and under the shoulders. Draw it down smoothly over the patient under the clothing laid above and put in the buttons. To put a fresh under-sheet over the bed roll it first lengthwise to half its width and then turn the patient on the side. Under the blanket laid over the patient, roll up all the under bedclothes already on the bed close to the back, placing the rolled part of the fresh sheet alongside those. Then the towels, folded lengthwise twice, are rolled up halfway along their length, the rolled part of the first being put close to the patient's back behind the shoulders. The rolled portion of the second is then laid close to the foot of the back, the rolled part of the third behind the thighs, while the fourth is so placed that it will come under the ankles. The patient is now turned so that the soiled linen may be entirely removed from the other side of the bed, and the under-sheet and towels are unrolled. See that the under-sheet is drawn smoothly and neatly over the bed, and that the towels lie quite straight. The arms are laid by the side, and a small narrow sheet is laid over the patient from about the waist downwards to cover the feet, with its margins folded in close to the patient's sides as it is not to be removed later. Then a top sheet is laid neatly over the bed, its extra length being folded back over the chest. See that the hair is nicely brushed, and the lower jaw will still require to be supported for a few hours. Lay a soft handkerchief over the face, never the top sheet, except in cases where death has been due to some infectious disease, and then the entire top sheet is wrung from carbolic or

lysol and water and laid over the bed. Medicine bottles, nursing appliances, soiled linen etc., are then all removed from the sick-room, and the furniture is quietly and neatly arranged. Dust the fender and other parts of the room if necessary, and place a fire-screen in front of the fire. To avoid making dust, the ashes are allowed to remain. The patient's own sponge, nail-brush, soap etc., are collected and rolled in paper, in which they are afterwards burnt. Put a clean white cover on the dressing table, and bring vases with fresh flowers into the room. Leave the windows open just a little from above, and draw the blinds. If there are children in the house lock the door, otherwise one of them might get a fright which would make him nervous and ill for a long time to come.

Before closing what I have to say in connection with the care of the dead, I should like to take this opportunity of saying something against the practice, so common in country districts, of bringing a continuous stream of visitors into the sick-room after death has occurred. In many cases this is only yielding to a morbid curiosity which is much better left unsatisfied. More important still, one ought to consider that in all probability the last thing the patient would have wished would be that any except just those who cared for him should go to the sick-room then. During his illness his wishes will have been a matter of first importance, and they should not be less so now. When, in a house which death has entered, I see this perpetual coming and going of often the most casual acquaintances it strikes me as showing a very minimum of reverence and respect to the dead.

CHAPTER XVIII.

HEALTH IN THE HOME.

INTELLIGENT nursing is impossible unless those caring for the patient have at least an elementary knowledge of the laws which govern health, and so I have decided that a book on home nursing can scarcely be considered complete unless a few of its chapters are devoted to the study of what will lead to good health and encourage recovery from disease.

The breathing of pure air in the home is just as essential to good health as nourishing food or pure water. It has as much to do with maintaining its health and strength as either of those. One might live for some days without food or water, but one could not live more than minutes without oxygen. To realise fully the need for pure air, it is necessary to know just a little about the structure and functions of two organs lying one on either side of the chest, and known as the lungs. In these, impure blood is purified by getting rid of its carbonic acid gas and other impurities, and by taking up in exchange for those fresh supplies of oxygen.

On its way to the lungs, the air should be drawn in first through the nostrils, so that it may be filtered, and also warmed, before it strikes against the more delicate tissues of the throat. Next it passes into the pharynx, a soft, funnel-shaped cavity at the back of the mouth, having muscular walls. The pharynx

opens behind into the œsophagus or gullet, which leads to the stomach, and in front, into the larynx, or voice-box as it is sometimes called. This, unlike the pharynx, has rigid open walls; and in order to prevent solid particles from getting into it when food is swallowed, it is protected above by a flap of tissue which forms a lid. When no food is being taken this remains erect and open, but when food is being swallowed it closes down over the larynx, and so prevents the entrance of any fragments. The thyroid cartilage forms the greater part of this voice-box. It is largest in men, and is spoken of as the "Adam's apple." Below it lies the cricoid cartilage, and above it the hyoid bone. Inside the larynx or voice-box are the vocal cords. There are two pairs of those, and it is the two inner or "true cords" which produce voice. From the voice-box the air passes into the trachea or "wind pipe." This also is a rigid tube always open, and it is kept so by hoops of cartilage. Those hoops do not entirely encircle the windpipe, the two ends falling short of that behind. They lie embedded in the walls of the trachea, so that inside this we find no ridges, but a smooth moist membrane covered with fine projections called cilia, and very much in appearance like the pile of velvet. Those cilia keep up a continuous movement of bending down and straightening again, and as they all bend in a direction towards the mouth, any mucus in the windpipe is driven upwards. Farther down, the windpipe divides into two branches called bronchi, one bronchus passing to either lung. When they reach these, each begins to divide and subdivide all through the substance of the lung. The branches so formed are known as the bronchial tubes, and these grow smaller and smaller as each springs from a larger tube, to divide again and again as it spreads through the lung, until at last those tubes become so small as to be only visible by means of a powerful microscope. The

bronchial tubes have the same structure as the trachea. We find the cilia inside them, and the same bands of cartilage to prevent their closing. Those, however, less completely encircle the tubes, and are much more scattered than we find them in the wind-pipe. Fewer and fewer are found as the tubes grow smaller, and indeed in the smallest bronchial tubes there are none at all. Each one of the smallest branches of the bronchial tubes terminates in a small dilated pouch or bag quite hollow inside, and it is laid back on itself in folds, so that many separate chambers or air cells are formed inside it, thus the bag is in appearance very much like a cluster of grapes.

Now the wall of each of those numerous little air cells is made of fine connective tissue, with a lining of flattened cells inside this, which just lie edge to edge. Alongside the minute tube, which terminates in this cluster of air cells, passes a small, fine capillary. This breaks up over each air cell to form a network of still more minute blood-vessels lying in its wall. Thus, practically all that lies between the blood in the blood-vessels and the air in the air cells is the layer of small flattened cells. Through this the blood can very easily give up its impurities, and take up instead a fresh supply of oxygen.

Thus, examination shows that the lungs are made up of air cells, bronchial tubes, and blood-vessels, held together in connective tissue. Each lung is covered by a smooth, moist, double bag of fine membrane known as the pleura.

When the blood in the fine vessels lying in the wall of air cell has got rid of its impurities and gathered up the needed oxygen, it passes to where those minute vessels join to form a tiny vein. This joins another vein and then another, and so on until all the vessels carrying pure blood unite at last in one large vein passing from each lung. This blood, laden with

health-giving oxygen, when it reaches the heart is sent by that organ through the whole body, that the tissues may be supplied with the oxygen which they need. It leaves the heart by one great blood-vessel, but this immediately divides into branches, and these again divide and subdivide through the whole of the body in a network more beautiful and flawless, and infinitely more fine than ever was the most delicate piece of old lace prized by royalty, priceless and frail.

The larger vessels leading from the heart are spoken of as the arteries, the smaller vessels are called capillaries, and the veins are those which lead the blood back to the heart. Through the delicate walls of the capillaries the tissues greedily gather up their oxygen, and in exchange give up their impurities caused by work and by waste. When this exchange has taken place the blood is collected into the veins which unite and reunite, carrying the impure blood again to the heart, to be sent by means of that organ to the lungs once more, that it may lose the impurities gathered from every part of the body.

Thus very briefly I have described the changes which are constantly taking place in the blood. As a result of these changes we find that the air passed out of the lungs differs very materially from that which entered them. It has lost about 5 per cent. of oxygen, and gained about 4 per cent. of carbonic acid gas, besides organic matter, water, and heat.

I must refer you to the chapter on ventilation and warming for the average composition of the atmosphere, and for some of the impurities which find a place in it.

Even the very short description given of those changes going on constantly in the air cells of the lungs shows the necessity for a proper proportion of oxygen in the atmosphere, and this can only be procured by ventilation. Remember, too, that the air is

not only vitiated by the respiration of men and animals, but impurities may be added to it in many other ways besides, and those impurities are present in a much larger proportion in the air of largely inhabited places than they are in the country or by the sea. In the home itself the air will be to some extent contaminated by the products of the burning of coal and gas. Certainly almost all houses have flues to carry off the products of the combustion of coal, but in very few do we find any provision for getting rid of those caused by burning gas. Many people say that no unhealthy products are given off by gas stoves and gas burners, but this is really a mistake. Carbonic acid gas, carbon monoxide, compounds of sulphur and ammonia, are some of the impurities given off by the burning of gas, and all of them are harmful to health. Besides those, we have particles of dust in the air arising from causes too numerous to mention here.

In the study of the science of ventilation we find two points always being taken into consideration. 1st, the size of the room and the number of its occupants; and 2nd, the amount of air entering and leaving it each hour. As much fresh air ought to be allowed to enter as you can possibly have without causing draughts, and if ventilation is intelligently carried out, there should be abundance of pure, wholesome air in the home without any necessity for those cold currents which, when felt, give rise to much complaining.

In the chapter already mentioned, I have explained how a fire assists ventilation, but it cannot do so quite to the extent necessary for the maintenance of health. Thus it becomes necessary to keep the windows open, and it is better to have them so from above than from below. To understand why this is so, one must bear in mind the difference between hot and cold air. The latter is always heavier than the former, and so

tends to fall towards the lower levels. Thus when a window is opened at the top, the colder, and consequently heavier, air will diffuse itself throughout the apartment and gradually fall towards the lower parts of this, while the impure and warmer air, being lighter than that which is entering, will rise up and escape through the open windows. The very gradual gravitation or falling of the fresh air, and the heat which to some extent it gains from contact with the warm atmosphere of the room, prevents any feeling of chill to the occupants. In warm, mild weather the windows can, of course, with much benefit be kept open both top and bottom.

We find that draughts can sometimes be caused by closed windows quite as readily as by open ones. If the frames and sashes do not fit properly, air often enters between these, causing cold currents, which may strike straight on the people occupying the room, especially when they happen to sit just between the windows and the fire. A more harmful and still more common way in which draughts are caused by closed windows is as follows. Hot impure air, rising in the apartment and coming into contact with the glass of the window, becomes cooled by this and so heavier. Consequently it falls in a kind of cold cascade upon those who are sitting near the window. Such a draught, being of impure air, is infinitely more dangerous to health than one of cold fresh air.

It is best that the windows in a dwelling should reach to the ceiling, because foul air always tends to collect in the higher parts of the room, and if the windows are not high enough there may be a layer of impure air just at the ceiling and above the level of the windows. This, by contact with the ceiling and walls, is always liable to become colder and so heavier, and then it will inevitably fall to the lower parts of the room, to be breathed over again by those who are there. If the windows are high and always

open this foul air will escape from the room as soon as it rises.

People who live in a healthy, well-ventilated home, on entering an atmosphere which is impure, very soon have warnings that such is the case. They are immediately conscious of the "stuffy" smell caused by the presence of putrefying organic matter in the air. After a little they may suffer from drowsiness or headache, and, it may be, even from sickness or fainting. Those, however, who pay no attention to ventilation in their homes do not have such warnings of the presence of poisonous materials in the air. The sense of smell in people used to a pure atmosphere is very sensitive, and entirely to be relied upon to detect traces of organic filth on entering a room which is not properly ventilated. Nature, however, soon ceases to give her warning if people pay no attention to it and continue to live in an atmosphere which, if matters are not improved, will gradually rob them of health and strength and the power for work, either mental or physical. Habitual breathing of impure air must inevitably lower the health of an individual, however strong he may once have been. It greatly favours the development of disease, and we find that doctors, more and more as time goes on, depend upon the influence of pure air in bringing about recovery for those who are ill. The form which ill-health, caused by the breathing of impure air, takes, varies in different cases. There is no doubt that such air has its own share in causing our very high infantile mortality. In hundreds of children we see its effects in the form of malnutrition, rickets, excessive tendency to contract infectious disease (especially tuberculosis in some form or other), and in impaired development, both mental and physical. Indeed, I feel sure that the habitual breathing of the putrid atmosphere so common in the houses in our city slums must have its own part in producing the moral degradation which we find in

many of the inhabitants of those localities. I have mentioned the more common results of the breathing of impure air by children. Perhaps, in an older person, the first result of a want of pure air will be a condition of languor and irritability. There is disinclination for work, and often we hear the complaint that such a person is "always tired." Next follows frequent headache and impaired digestion. A condition of anæmia or "bloodlessness" ensues, which is very difficult to cure, and gives rise to great weariness and nervous debility, not to mention the fact that it renders the individual an easy prey to any form of acute disease.

If the air in a house is to be pure, it is of course important that all sanitary appliances should be constructed on hygienic lines, and any flaw in those should, if possible, be put right.

The water supply in the home must be pure and plentiful. Usually we find that water is abundant enough to supply all the demands of modern hygiene; but sometimes in the country it is taken from a very questionable source. It is not my intention here to go into the arrangements required to procure a wholesome water supply nor to speak of the sanitary appliances necessary to a hygienic dwelling, because that seldom lies in the hands of the women in the home. In connection with water, however, I should like to draw their attention to the dangerous faith that exists in filtration. This, as it is usually carried out in the home, tends rather to take from, than to add to, the purity of the water. With the exception of the Pasteur Chamberland, there is no filter to be absolutely relied upon to render impure water free from danger. People should not be content until their water supply is above suspicion; but until that is so, unless you chance to possess the filter mentioned above, boiling is the only way in which you can make your suspicious water fit for drinking.

The choice of the site for the house scarcely comes within the province of notes on home hygiene, but it does lie in the hands of the mother, or those who have the management of the home, to see that as much sunlight as possible is allowed to enter it. Houses, which do not get their share of the light, are dark and dismal; as a rule they are dirty too, and always predispose towards ill-health. Modern science has clearly shown that we have no better healer and purifier than sunlight. Therefore, it is important that all living rooms should be penetrated by its life-giving rays, so that the window area should be interfered with as little as possible. Don't hang heavy, dark draperies partially across your windows, and see that the panes of glass are kept clean, in order that light rays may not be interfered with.

No house can by any possibility be healthy which is not kept clean. Dirt and dust in the home are far more dangerous and more likely to cause ill-health, than is generally supposed. One has but to consider the composition of dust and the ease with which the minute particles can be drawn into the air passages, to realise its power to lower the health of those who live in houses in which it is allowed to collect. Dust, under the microscope, is seen to be made up of fat cells, particles of sand, carbon, wood, wool and cotton, scales of skin and hair, pollen of plants, cells from wounds, and germs, some harmless, others causing disease; and in towns the dust in houses is likely to be more harmful than that in the country, because of the impurities blown in from the street. The organic matter in dust, just like that in air or clothing, decomposes and adds injurious products to the atmosphere. Therefore we find that those who wish to do what lies in their power to preserve health in the home, try in every way that they can to prevent dust from finding resting-places there. When buying furniture, don't choose that which is difficult to move,

or that with carving and false cornices, because such things tend to collect dust in places from which it is not readily removed. Heavy hangings, which absorb and retain dust and organic matter, are to be avoided. While it remains on furniture and about hangings, dust may not be so very harmful, but remember that at any moment it is liable to be wafted into the atmosphere, and then to be drawn into the lungs. Carpets should not be used which fit closely into the walls, but ought to be laid down in squares, and then they are easily lifted for cleansing. Indeed, if they will lie smoothly without tacking, it is better that they should, because then they can still more easily be taken up and shaken, so that their cleansing, and that of the boards below, will in consequence be more frequent.

Linoleum gives a surface which is very easily cleaned, but, unfortunately, when it is used the boards below are very badly ventilated. Dust collects, too, between joinings and under the margins. This decomposes all the more readily that it is frequently moistened, causing the unpleasant odour of which one is often conscious when linoleum is lifted. But for the dangers of such a slippery surface, wood, stained and polished, makes by far the most hygienic floor. We have this in all our hospital wards, and the frequent polishing which it gets with bees-wax and turpentine makes it quite a non-absorbent surface. On such a floor rugs or matting can be laid down, and these are very easily lifted and shaken. When plain white, wooden boards are used, any crevices between them should be filled up with oakum and glue. This is really very easily done, and it is well worth the trouble, because a great deal of very dirty matter often finds a resting-place between the boards of a floor, especially in a living room. Damp sawdust or damp salt may with advantage be used in brushing a plain wooden floor, and it should be frequently

scrubbed, because unpolished wood like this is very absorbent. For carpets, or linoleum, use plenty of damp tea leaves when you are sweeping, to avoid spreading dust through the apartment. When dusting, it is useless to slap the furniture with your duster, because this only sends the dust, which you wish to remove entirely, into the air, probably with an added amount from your duster. It settles when the air and your duster are quiet again, on floor and furniture. A duster, slightly moistened, should be used, because a dry one only changes the place of some of the dust. See that every part of the furniture is gone over at least once each day. It is a very good thing to rub the surface of the carpet over also with a clean moist duster, because this will collect the finer dust which escapes the brush.

Remember that dirty hangings, and bedclothes and garments which are not washed as frequently as they should be, are a very common source of contamination to the atmosphere in houses.

Distemper is probably the most hygienic wall covering which you can have. It is not expensive, and so it can be frequently renewed. Use some light shade, so that lighting will be more easy, and dust more readily visible and, consequently, more likely to be removed. If paper is the covering chosen, avoid thick, flock papers, because they very readily absorb impurity. The danger of arsenic poisoning from wall paper is pretty well known, but the risks of this are now small. It is absolutely essential, if the atmosphere of a room is to be healthy, that the old paper should be entirely removed before the fresh one is put on, or the organic matter of which the paste is composed, and which will remain between the different layers of paper, will in course of time putrefy owing to the heat in the apartment, and so give off gases which will to some extent lead to atmospheric impurity.

It is very often the women in the house who choose its grates, and in buying one, certain points should be kept in mind. Tile grates are good, because dust is more apparent, and from them it is very easily removed. As you do not wish to have more than half the heat produced from the combustion of coal sent up the chimney, it is important that the back of the fire should slope forward so that the opening to the chimney is very narrow. Try to have as much brick, and as little iron, as possible, because then more heat will be given to the air in the room. The ribs should have only very narrow spaces between them, and to avoid waste of coal the space under the fire should be closed up by what is known as an "Economiser." If this is not used, cold air strikes against the fuel at the bottom of the fire, and when this has gone out we find large cinders instead of a fine ash. Cinders always show imperfect combustion, and are rarely seen in a really good grate. This may cost a good deal at first, but it soon pays for itself, not only in the amount of coal saved, but in the increased comfort to which it leads.

CHAPTER XIX.

FOOD IN HEALTH.

THE first part of the digestion of our food takes place in the *mouth*. The interior of this is covered by a smooth moist membrane, spoken of as a "mucous membrane," and under this lie nerves, blood-vessels, and lymphatics. The tongue, a muscular organ containing nerves of taste, occupies the floor of the mouth. The roof is formed by the "hard palate," and behind this, like a curtain between the mouth and the pharynx, we have the "soft palate." The parts of the mouth, however, with which the present chapter is chiefly concerned are the teeth and certain glands spoken of as the salivary glands. I shall speak in a subsequent chapter of the structure of the teeth, so that it is unnecessary to deal with it here. There are three pairs of salivary glands, and like the other glands of the digestive tract they are called the "secretory glands," because they secrete or prepare a fluid for the digestion of food. The largest salivary glands in the mouth are those known as the parotid glands, and they lie in front of, and partially under, each ear. It is these that become swollen in the disease known as mumps. The second pair of glands lie one on either side of the mouth, just at the angle of the jaw, and the last pair are situated under the tongue. Each gland consists of a part which prepares the saliva, and a duct or tube which conveys it to the

mouth. Now those salivary glands are practically always secreting saliva, but they are stimulated to secrete it in much greater quantity by the presence of food in the mouth. Even the smell or sight of food makes them more active. The most important element in this digestive juice, which we call the saliva, is a ferment named *ptyalin*, which has the power to dissolve starch, and so we find that in the mouth, the starch elements are acted upon and made fit for absorption. Thus it is very important, if this part of the digestion is to be performed properly, that food should be well masticated or broken up by the teeth. If food, such as bread for example, which contains a great deal of starch, is not properly chewed and quite mixed with the saliva, it is not digested as it ought to be, and so the individual gets very little real good from it. Whatever food is being taken however, it is of paramount importance that it should be properly masticated, otherwise none of the digestive juices can penetrate it properly, and in consequence there result impaired digestion and defective nutrition.

From the mouth food passes into the *pharynx*, and then into the *gullet* or *œsophagus*, a muscular tube leading to the stomach, and measuring about 10 inches in length. The gullet, in its way to the stomach, pierces a partition between the chest and abdomen called the diaphragm, and the *stomach* is a pear-shaped bag lying immediately under this. The broad end of the stomach lies towards the left side, and is called the *cardiac end*, because it is the part of the stomach nearest to the heart. It is at this portion of the stomach that the gullet enters, and the opening from this is called *the cardiac orifice*. The size of the stomach varies in different individuals, and the average capacity is between 2 and 3 pints.

The wall of the stomach is made up of four coats. The outer is a moist membrane, called the peritoneum, and inside this is a muscular coat. When food enters

the stomach the fibres of this muscular coat are thrown into action, so that the food is churned backwards and forwards, and becomes thoroughly mixed with the juices which are to accomplish its digestion, so far as the stomach is concerned. The muscle fibres at the narrow end of the stomach, however, remain contracted until the food has been reduced to a fluid state. When this has taken place they relax, so that the food may pass through this narrow part of the stomach, called the *pylorus*, into the intestine. That layer of the wall of the stomach which lies inside the muscular coat, contains many blood-vessels, nerves, and lymphatics. The innermost layer, or mucous membrane, as it is called, lies in folds or wrinkles when the stomach is empty, but when it is full, and so dilated, those folds disappear. Between the folds are many minute openings from the gastric glands which secrete or prepare the gastric juice required to digest the proteid materials in our food. In the intervals between meals those gastric glands are busy taking from the blood the various substances of which the gastric juice is composed. When food has entered the stomach they throw into it, through their tubes, the juice to bring about digestion. It has been proved that, if a meal is nicely cooked and daintily served, more gastric juice is produced in the stomach, and, consequently, the food will be more thoroughly digested, and so more nourishment is got from it. Herein lies the importance of making all meals in the home as tempting as possible.

The next part of the food tract or alimentary canal, is the small *intestine* or bowel. This measures more than 20 feet in length, and lies coiled up inside the abdomen. The first portion of it is called the duodenum, and this receives the digestive juice prepared in the largest gland of the body. This gland is known as the *liver*, and it lies on the right side just under the partition between the chest and the

abdomen. This organ performs three different functions: (1) It secretes bile. (2) It absorbs digested materials from the blood and stores them up. Then, when it has changed them in such a way that they can be readily made use of by the tissues, it returns them to the blood. (3) It acts as a filter for the blood, destroying substances derived from the food taken, which, were they allowed to circulate in the blood, might do harm to the body.

It is in the first duty which I have mentioned that we are more particularly interested when considering the processes of digestion. The bile juice prepared in the liver is concerned chiefly with the digestion of the fats in food. These it changes in such a way that they can be readily gathered up by certain vessels called lacteals. From those, through the thoracic duct, the fats at last pass into the blood-stream.

The bile stimulates the muscles of the bowel to, more readily, pass on waste matter, and it also, to some extent, possesses the power to destroy germs in the food. When there is no food entering the bowel the liver stores up the bile juice which it prepares, in a small bag on the under surface of its right lobe, and, when food enters the duodenum or first part of the small intestine, the bile juice is poured into this through a small duct or tube, in order that it may assist in the digestion of the fatty elements contained in the food.

Lying behind the stomach is another gland, called the pancreas. The duct or tube from this joins the bile duct from the liver, so that the pancreatic juice from the pancreas enters the bowel along with the bile juice. This pancreatic juice combines the duties of all the other three digestive juices. If any starch grains in the food have escaped the saliva, it acts upon them; if any proteid material has passed from the stomach not thoroughly digested, it completes the work of the gastric juice in regard to that, and it

assists the bile juice from the liver in the digestion of fat. There are also small glands in the intestine itself which in a small way assist in the digestion of food. As the digested food passes along, throughout the length of the intestine, the emulsified fats are gathered up by vessels called lacteals, and eventually enter the blood, while the other soluble materials in the food pass into the blood-vessels, and by means of these through the liver, and later through the general circulation.

When digestion and absorption in the small intestine are completed the remaining food passes into that part of the food tract which is known as the large intestine or bowel. The vessels in the walls of this portion of the intestine very readily gather up fluids remaining unabsorbed.

The duty of food is to provide the body with what it requires for building up new tissue and for repairing waste, and also with a means for providing heat and work. In the young body food is necessary to build up new bone and muscle, in the adult body, although growth has stopped, there will be waste of tissue to be made good, and in both the young and in the adult body, food is required to give a source of energy for work and for heat.

A great many people believe that a food is made up of one single element, but this is quite a mistake. We find out from analysis that our food is made up of different substances, namely, proteids, carbohydrates (that is sugars and starches), fats, mineral matter, and water. Those elements in food which build up and repair tissue are the proteids, mineral matter, and water. Those which provide for the production of heat and work are the proteids, carbohydrates, and fats. Thus we find that the proteids in food have the power both to build up tissue and to give a source for work and heat. This is how they received their name, for the word proteid means pre-

eminent. In considering the value of any particular food we must take into consideration its analysis—how much of each of those elements mentioned it contains. Then we can judge of its value as a building material, or a work-producing power, in the body. Another point in deciding on the value of a food is the ease or difficulty with which it is digested and absorbed. If it is one easily digested less work will be required of the stomach before it is made use of by the body, and so, provided its analysis is good, it will be the more valuable as a food. Another matter to be taken into consideration when judging which are the best foods to use, is their cost in relation to the amount of nourishment that they possess. Are you getting a proper amount of real good for the amount of money you spend? People nowadays pay far more for the flavour of food than for real nourishment in it. They choose varieties of fish, bread, and cheese likely to tempt the palate, very likely paying far more than twice as much for those and yet receiving no more nourishment from them than they would get if they bought some of the cheaper forms of the same food.

The amount of food required depends largely upon the amount of muscular work performed. If there is an increase of work then there will be an increased need for food. Brain work does not, to the same extent as muscular work, increase waste in the body, but, for a brain worker, good, nourishing food is just as necessary as it is to those doing physical labour. The brain does better work if the body is well nourished, and it is important that the food of those doing this kind of work should be light and easily digested. The quantity of food required is also influenced by age, by sex, and by individuality. In proportion to the size of its body a child takes more food than a grown-up person, because it must provide for those new tissues which are being built up. Then old people require less food than those who are middle

aged. Too much food will not tend to cause an old person to live longer, but rather it will shorten life. Women, as a rule, require less food than men, and sometimes we find people who by nature are habitually small eaters getting far more apparent good from their food than those who evidently require a much larger amount to supply their bodily needs.

There is no doubt that the tendency of the average individual to-day is to eat more than is actually required to serve the purposes of health and strength. When too large meals are taken habitually the tendency is apt to be towards malnutrition rather than increased strength, because the digestive organs are overworked, and so, in the end, less food is really prepared for absorption. From over-eating much ill-health is caused, but still more serious, especially among children, are the results of under-feeding or of foolish dieting. From this we have anæmia, tuberculosis, nervous debility, indigestion, rickets, and many other diseases resulting. Because no single food contains all the elements in the proper proportions for a healthy body, it becomes necessary to mix the different foods. Thus, because meat contains proteid but no starch we add the latter to it by eating potatoes along with it; these contain a large amount of that element. In the same way because bread contains an excess of starch and a minimum of fat, we usually eat it with butter.

The aim in cooking food is to improve its flavour and appearance, to purify it, and sometimes, but not always, to add to its digestibility. Most vegetable foods are made more digestible by cooking, but meat is, as a rule, more easily digested when it is raw. We cook it, however, in order to destroy dangerous germs which may be present in it. In cooking meat the rule generally is that it ought to be submitted to a high temperature for a little at first, and afterwards cooked at one considerably lower than that required

during the first five minutes. Thus in boiling a piece of meat in which you wish to retain the juices, you ought to plunge it into boiling water first, and to keep this water surrounding it boiling for five minutes. This process causes a hard outer covering to form over the surface of the meat so that the juices cannot escape, and afterwards the water ought just to simmer slowly for a long time. The same thing applies to roasting. Let the oven be very hot for the first five minutes, and then cool it down a little after the albumen on the surface of the meat has hardened. Just the opposite treatment is applied to meat when you wish its juices to pass from it. Then, as in making beef tea, you place the meat in cold water and slowly heat it. The real secret of success in preparing meat in such a way that people will get all possible good from it without giving the digestive organs more work than need be, lies in cooking it for a long time and very slowly.

Meat contains a large quantity of proteid, and hence it is valuable as a building material for the body. Because it contains such a large proportion of this element most of the digestion of meat must necessarily be accomplished in the stomach by the gastric juice. That this juice may be able to penetrate the meat thoroughly it is very important not only that the meat should be cooked in a way that will make it tender and easily digestible, but also that it should be very thoroughly masticated before it is swallowed. Meat, although it is nutritious, is still a dear food, and hence it is, if possible, all the more desirable that it should reach the stomach in a condition in which that organ will be able to act upon it thoroughly.

Fish contains pretty much the same food constituents that are found in meat. The nourishment contained in the different kinds of fish varies, some containing as much nourishment as meat, others less. The price of a fish is not to be taken as a sign of its

nutritive value, because sometimes a fish, such as sole, for example, will cost three or four times as much as some other containing quite an equal amount of nourishment. Indeed, it is generally the cheapest kinds of fish which give the most nourishment for the money spent. The herring, for instance, although not so digestible as some other varieties, contains a large amount of nutritive material for its cost. In choosing fish one ought not to think only of its price from a weight point of view, but some consideration should be given to amount of waste in it. Often quite a large proportion of it, in the shape of skin and bone, is useless, and this has to be considered when you wish to get all the nourishment possible for the money you have to spend on the food. Boiling and steaming are the lightest ways in which you can cook fish, and frying is the least so of any, because the food becomes saturated in fat which may prevent the gastric juice in the stomach from being able to penetrate it thoroughly.

There is always a great deal of controversy as to whether white or brown bread is the best. The latter contains certainly a greater amount of nourishment than white bread, but it is not so easily digested and absorbed, so that, in the long run, it is believed that quite as much, if not more, nourishment is eventually obtained for the body from ordinary bread. Don't, however, try to get a bread which is very white, because that will usually contain an excessive proportion of starch and very little proteid. A good loaf should be well risen and light, and without large holes in it. Bread is a food which gives a large amount of nourishment for the money paid for it. Its digestion mostly takes place in the mouth, hence the necessity for its being well masticated and properly mixed with the saliva before being swallowed.

Oatmeal is the most nutritious of the cereals commonly used in this country, and the coarser forms

contain the greatest amount of nourishment. From a weight to weight point of view, oatmeal, when made into cakes, contains about twice the nourishment of ordinary bread, and so it gives an exceptionally large amount of good for the money spent on it. Unfortunately for some people the husk of the oats is very adherent and so remains in the meal. To other people this is rather an advantage than otherwise. In some individuals the use of oatmeal as a food gives rise to troublesome skin eruptions, but those cases are the exception.

If more oatmeal were used instead of the soft white fancy breads, which consist very largely of sugar and starch, there would be less ill-health and fewer complaints of bad teeth among children, and they would, as a rule, be far stronger physically.

Beans, peas, and lentils are very nutritious foods, and because of the excess of proteid which they contain are often made to take the place of meat in vegetarian diet, or in the homes of those to whom economy is a consideration. A good plateful of lentil soup makes a capital substitute for meat at a meal, so far as actual nourishment is concerned. Unfortunately, however, some people object to the flavour of lentils, but when they are nicely cooked this is rare. Lentils are more digestible than either beans or peas, and the finest varieties are the best to use. Beans are not quite so digestible as peas, but any of the three may with great advantage find a place frequently in the daily dietary in the home. Be careful not to singe this food in cooking it, because then it becomes very objectionable, and, indeed, by serving it like this, you may teach your children to dislike it ever after. Revelenta is made from lentil flour, and it makes a very nutritious food indeed when mixed with a little boiling water to the consistency of a thick gruel. A little butter should be added to this and some salt, and then it is eaten along with milk.

Eggs contain much nourishment for their bulk, and they can with advantage be added to the ordinary diet in a great many different ways. They add to the nutritive value of puddings and bread when they enter into the preparation of these, and we can prepare eggs as an independent article of food according to the way in which people may like to have them served. Usually they are boiled, and everyone knows that then the more lightly they are cooked the more digestible they are. When boiled beyond five minutes the albumen becomes hard and tough, and the gastric juice cannot easily digest it. Many people put three minutes as the limit for cooking an egg.

Milk is often spoken of as "the perfect food," but it scarcely contains the amount of nourishment that usually it is credited with. It is a perfect food in so far that it contains in its composition every one of the elements required by the body, but it does not contain them in nearly the right proportions. Because of the large percentage of water its bulk is very large for the amount of real nourishment in milk, and, just because of this excessive bulk in relation to its nutritive principles, it is impossible as the sole article of diet for a person who is taking anything like an ordinary amount of exercise. Then risks connected with its use in relation to the spread of disease have been noticed elsewhere. When you are not sure of its purity, therefore, have it boiled, and cool it down again as quickly as possible. Milk very readily absorbs impurity, and, once they reach it, germs grow very quickly in milk, hence the necessity for keeping it in the purest atmosphere possible, and never in the sleeping room.

It is the proteid matter of milk that gives to it its white colour. The carbohydrate is present in the form of sugar, but this differs from ordinary sugar in that it is not sweet. The fat of milk is found in a form of great perfection, indeed it is broken up so

finely that in a very small drop of milk you have about two million separate cells of fat. Being so finely broken up, this fat in milk can be very easily and very thoroughly acted upon by the bile and pancreatic juice, and so it follows that cream is the lightest form of fat there is. Milk is rather deficient in mineral matter, but this is not of great importance in the early months of infancy, although it has to be taken into consideration when a grown-up person has to live on milk alone.

The great bulk of milk consists of water, and it is because of this that, in spite of the fact that it contains every element required by the body, it is impossible to live and work for long on a diet composed of milk and nothing else. To get the needed nourishment for the ordinary conditions and habits of life, a diet of milk alone would overburden the stomach with far too much fluid. Milk, however, especially where children are concerned, makes a most valuable adjunct to the ordinary diet, and ought always to find a place in it. Oatmeal with milk, in particular, makes a splendid combination for those who wish to choose food likely to help in producing good muscle and bone.

Butter is a very light form of fat, and a very wholesome one as a rule. Unfortunately, when the income is small it is found to be rather expensive, and, because of this, children are apt not to get quite so much fat in their food as they ought to have. The amount of fat in the food used during childhood often influences very greatly the nutrition and health of the child, both in the earlier years of life and those of maturity. Therefore, if the amount of butter required costs rather more than the mother considers it prudent to spend on this, she should see that it is substituted, not with jam, but by some food which will properly take the place of the butter, such as margarine or dripping. Either of those are very

good, although a little prejudice still exists in regard to the former. People, however, are becoming wiser in regard to this point, and are realising what an efficient substitute margarine really makes for butter; usually, indeed, it gives rather a better analysis even than butter does. I have heard people say that margarine is not so pure as butter is, but this is quite a mistake. Butter does not in the process of its preparation reach boiling point, so that any germs present in it remain. In the case of the margarine there is much boiling, and it is made now from the very purest and best animal fats. No doubt its flavour is something of a disadvantage, but in a good margarine this is not very marked. Children often like dripping, and so that may be made to take the place of butter. It is especially important in winter that children should have a fair proportion of fat in their food to help in maintaining the natural heat in the body. Suet puddings, or fried bread, are foods by means of which we often find it possible to get a little fat into a child's diet. Don't allow him to keep on refusing food with fat in it, because his digestive organs may then ultimately lose their power to deal with it. At the same time it is of great importance that you should study the child's likes and dislikes at all times in regard to the manner in which fat is given. Most children will take quite readily a suet pudding, or it may be rice pudding baked with plenty of butter or margarine.

Cheese contains a very great deal of nourishment, but unfortunately it is not very digestible. For those who can digest it, however, it makes a capital substitute for meat. Some kinds of cheese contain more than twice the nourishment that meat has, from a weight to weight point of view. When used in place of this it can be prepared in a great many different ways. Often it is grated and baked along with rice and macaroni. The cheese is rich in protein and fat,

and the rice or the macaroni, as the case may be, makes good its deficiency in starch. It is very nice, too, when used along with potatoes; put alternate layers of grated cheese and potatoes into a buttered pie-dish, and bake in a moderate oven. Of course, many people can digest meat who cannot take cheese, but, as a rule, in healthy people it can be digested without much difficulty, and then it can occasionally be substituted for meat at a meal—not too often, for people may grow tired of it.

Thus we find that, if women know just a little about the nutritive values of the different foods, they can spend what is often very hard-earned money to much greater advantage, and it is with the idea of making my book helpful to you in health as well as in sickness that I have said so much about some foods that do not enter into the sick-room diet at all.

CHAPTER XX.

CARE OF THE SKIN AND HAIR. SCALP AILMENTS OF CHILDREN.

THE skin is an organ very much more concerned with the preservation of health than most people suppose. They look upon it as a very simple structure, but examination under the microscope shows it to be quite complicated. It consists of two distinct layers, the upper being called the epidermis and the lower the dermis or "true skin." The epidermis consists of layers of cells, one laid above another. The cells of the lower layer are oblong or columnar; the cells above that are more rounded; in the next layer we find them becoming still more flattened; in the next still more so, until at last on the surface we find mere flat scales, and these are being constantly rubbed off. They are seen very plainly like a fine, white dust on the skin surface or the clothing of an individual who does not frequently wash the body. As those cells or scales fall off, their place is taken by cells from the next layer. It is the epidermis which is raised when the skin is blistered as you find it sometimes after a burn. The epidermis contains neither blood-vessels nor nerves.

The dermis or deeper layer of skin is made of strong, elastic, connective tissue, and it is very rich in lymphatics, blood-vessels, and nerves. Over the surface of the body this dermis lies in folds or ridges, and these are seen very plainly on the palms of the

hands, on the soles of the feet, and on the fingers and toes. On the surface of the dermis are many minute projections known as papillæ, and in those are found nerves, and the minute blood-vessels known as capillaries. Some of the nerves are arranged to form what are known as "touch-bodies." When the epidermis has been destroyed the nerves in the dermis are irritated, and so pain is felt.

When you examine the skin under the microscope, many small depressions or openings are seen, and these are the pores, or openings of the sweat glands. Each sweat gland is a coiled-up tube lying in the dermis, and very closely surrounded by a network of minute blood-vessels. The pore which you see under the microscope is simply a continuation of the tube which forms the sweat gland, and it passes right up through the epidermis to the surface of the skin. Those sweat glands are found in great numbers over the whole surface of the body, but they are especially plentiful on the soles of the feet and in the armpits. It has been said that if all those sweat tubes in the body were laid in a straight line this would measure twenty-eight miles. Now the duty of those glands is to take from the blood, water containing waste and unwholesome matter dissolved in it. This fluid or perspiration passes through those millions of tiny tubes to the surface of the skin, and most of it is carried away by evaporation as soon as it reaches that, therefore we speak of it as invisible perspiration, because we do not see it lying on the surface of the body. Most of the waste matter got rid of by the skin is in the form of this invisible perspiration. Sometimes after muscular work, or in a hot atmosphere, it collects on the skin, and is seen and felt. Then it is called visible perspiration. From one to two pints of this waste and unhealthy material, which we call perspiration, is got rid of from the body by means of the sweat glands in the skin in every twenty-four hours. The

amount varies in different individuals. Some people perspire very little, others a great deal. In the case of the latter a very distinct and unpleasant odour often results, and the only cure for this is frequent washing of the skin and of the garments. Dusting the skin with a mild antiseptic like boracic powder will also improve matters.

The hairs rise from the epidermis, and are made up of the same kind of cells. In fact, they are simply modifications of this upper layer of the skin. At the part where a hair is formed the epidermis is folded inwards to form a pit or hollow, and from cells down in the centre of this pit, the hairs grow. At the bottom of the pit a papilla projects from the dermis, containing blood-vessels which convey nourishment to the hair, and in connection with each hair there is a minute muscle. Beside the hairs lie the sebaceous glands, and the pores of these open into the pits in which the roots of the hairs lie. The function of these glands is to produce an oily fluid, which keeps the hair glossy and the skin soft, and also assists in the separation of the surface scales on the epidermis, so that they are more easily thrown off. The nails also are just a modification of the epidermis, but in them the cells are hard and horny. The dermis which lies under the nails is extremely rich in nerves, and consequently very sensitive.

The duties of the skin are four in number: 1st. It protects, as is well known, those tissues which lie under it. 2nd. It aids the kidneys and lungs in ridding the body of waste and unhealthy material. 3rd. It regulates the body's temperature. 4th. It is one of the sense organs—it is a very sensitive and a very useful organ of touch.

With regard to the first duty it performs, the skin is, although very sensitive and elastic, very strong and tough as well, and so it is suited to protect the more delicate structures beneath it. The second duty

of the skin is performed by its sweat glands, and the third is also in a measure accomplished by those glands, but the important work of regulating the heat of the body is largely controlled by the brain. Heat in the body is both produced and lost under the direction of this organ. It is given off, in a greater or less degree, by all the organs employed in eliminating waste from the body, but by the skin it is given away in two ways: it is lost along with the perspiration, and by radiation from the skin surface. In most people the perspiration given off is dependent upon the needs of the body. In cold weather no extra heat has to be got rid off, and less perspiration is produced. Therefore there is less evaporation, and consequently less heat is carried away from the body's surface. In summer the sweat glands produce perspiration in a much larger amount, and so the evaporation of this carries away more heat from the surface of the body, which is kept cooler than it might be because of this. Then in cold weather, by certain laws of nature, more heat is produced in the body, while less is lost to it. This diminishing of the heat given off is accomplished by lessening the radiation of heat from the surface of the skin. In cold weather the vessels of the skin are contracted, and so contain less blood, and radiation is diminished. In warm weather they are dilated and full of blood, and the radiation of heat is increased so that the body may not become over-heated.

The dermis contains an enormous nerve supply, and by means of this it performs its fourth function in the body. When those nerves and touch corpuscles are brought into contact with any object the sensation of touch is produced. When they are injured, pain is the result. Then the skin, by means of those nerves, is very accurate in discriminating between the different degrees of heat and cold.

The first step in connection with having a healthy skin is to keep the blood in a healthy condition.

Simple nutritious dieting, deep breathing, exercise, fresh air, and cleanliness, all help to maintain the purity of the blood supply, and its ability to perform its functions. Then if the skin is to be healthy, it is of primary importance that it be kept clean, and so the whole surface of the body should be bathed, or at least sponged, each day. It is quite an exploded idea now that a Saturday night's bath is all that is required to keep the body healthy. If the skin is not frequently washed the sweat glands will inevitably become blocked with their own secretions, so that they are forced to be inactive, or at least to work with difficulty, and consequently very imperfectly. The dead scales on the epidermis, too, collect and help to close up those millions of busy, little tubes, so that much foul and unhealthy matter is retained in the body. Then, because the skin cannot perform its own share of the work of eliminating waste from the body, the lungs and kidneys get more to do than they ought, and disease may result in those organs. The dirt which collects on the skin surface consists of a paste made up of various materials—fat from the sebaceous glands, sweat containing waste and foul matter, dead scales of skin, particles from the clothing, particles of soot and dust from the air, and, it may be, germs of disease. This constitutes dirt as it is to be found on the skin surface. It contains a great deal of organic matter, and this, encouraged by the heat and moisture of the skin surface, putrefies and gives off unwholesome gases, causing the unpleasant odour of which one is conscious on coming into contact with an individual who does not often wash his skin. Moreover, this foul, decaying matter on the surface of the body is liable to be absorbed by the skin, and then some disease may develop in that organ which may be prolonged and very difficult to cure. A person who does not keep the skin clean is more apt to suffer from rheumatism and chill. Perspiration contains a

good deal of salt in solution, and when the watery part of the sweat evaporates, the salt is left on the surface of the skin. This will very readily absorb moisture again from the atmosphere, which again, owing to the heat of the surface skin, evaporates, carrying away heat from the body, and so giving rise to surface cooling. Again, moisture will be absorbed by the salt which remains, and again this evaporates, so that the body, if the skin is dirty, cannot be so warm. Thus, if the health of the body is to be all that it might be, the skin must be encouraged to perform its functions, and this can only be accomplished by habits of cleanliness. We find that, if the skin is not kept clean, impurities are retained in the body, diseases of the lungs, kidneys, or of the skin itself may result, the regulation of the temperature of the body is interfered with, and moreover, the individual, owing to the odour caused by decomposition of the impurities allowed to remain on the body's surface, becomes objectionable to those compelled to come into contact with him.

Cold water is not sufficient to remove entirely the secretions from the glands of the skin. Hot water is required to dissolve the oils from the sebaceous glands, and soap must be used to enable those fats to be washed away. Soap consists of an alkali mixed with fatty matter. This alkali combines with the fats on the skin surface, and by emulsifying those, enables them to be washed away. Notice that at the back of the neck, between the shoulders, and at each side of the lower part of the nose, there are many sebaceous glands, so that for those parts plenty of soap must be used and rubbing. The face and neck ought to be washed at least twice each day, and the hands always before meals, because on those germs collect very readily. Notice particularly that children cleanse the hands properly before washing the face, because, if those are only partially clean,

germs and other impurities may very readily be rubbed into the face when that is washed, giving rise, it may be, to some troublesome eruption, to a severe and infectious form of eye inflammation, or to ulcers on the eye, which may cause permanent impairment of the eyesight. A very lazy and dirty, as well as a dangerous habit, is that of allowing a child to wash in water which has already been used by another. It is important that habits of personal cleanliness should be cultivated in children, because when such habits are formed in early life they are enduring, and the child will thrive better and give less trouble to those responsible for his well-being if his habits are those of regularity and cleanliness. Dirt is almost the chief evil of child life to-day, and one or two dirty children sent to school may contaminate the atmosphere breathed by a whole class.

As has been said, cold water is not effectual in thoroughly cleansing the skin, and, if possible, everyone ought to have a daily warm bath, or at least the whole surface of the body ought to be sponged over with warm water and soap every day. People are rather apt to use for the warm bath, water which is too hot. Its temperature ought not to be more than about 95° to 99° F. Plenty of soap should be used to get rid of the oily secretions from the skin, and ordinary yellow soap, or old, brown Windsor is the best to use for the bath. Carbolic soap should not be chosen, because it often gives rise to very obstinate skin ailments. The skin ought to be well rubbed with a loofah or flesh brush, to free it from surface scales and other impurities. A quick sponging of the body with cold water after the bath acts as a stimulus to the vessels in the skin, and lessens liability towards colds or chill. There should be brisk rubbing afterwards with a rough bath towel.

A cold bath, although not so cleansing as a warm one, is more invigorating, and certainly all those who

feel a glow of reaction after it should take a cold bath daily. Even although he may not experience this, a cold bath is quite a good thing for the average individual, provided he does not remain too long in the water, but this, unfortunately, most people do. The cold water bath ought to consist only of a plunge into the water and out of it again, followed by plenty of rubbing. Cold baths ought not to be given to children under five or six years of age, and neither ought their baths to be too hot.

Cleanliness of the nails is a matter requiring strict attention, as dangerous impurities often harbour under and about those, and consequently they should be kept clean and well cared for. For cleansing the nails, soap and water and a nail brush are the best things to use, and they ought not to be allowed to grow too long. Nail biting, and sucking the fingers, are dangerous habits in children, as frequently germs are introduced into the mouth in this way. The toe nails in particular should be kept clean, as germs have a tendency to lodge about them as well as organic matter to collect and remain in a state of decomposition.

The hair must be attended to as well as the skin, and, unless in exceptional cases, it ought to be washed regularly once a week, because, if it is to be kept healthy and in good condition, the scalp, just as much as any other part of the body, must be kept clean. Those having very oily hair should add just a little borax to the water used. Others who have dry hair do not require this, but in these cases the yolk of an egg may be used in washing it. The hair should be well rinsed with tepid water in either case. Even when regularly washed, the hair soon gets dirty, because particles of dust lodge in it readily and are retained by the fatty secretions of the sebaceous glands, so that it ought to be brushed each night.

Cleanliness of the hair is specially important where children are concerned, because prolonged and infectious ailments may result from lack of care and attention in regard to this. Germs and vermin will lodge about the hair as well as dust. The latter will lead to scratching, and the skin being injured by this, germs gain entrance and produce eczema of the scalp, or some other form of disease. It would be well if all children attending the public schools—girls as well as boys—would wear their hair short until they are thirteen or fourteen; but anyhow, girls with long hair ought to be made to wear it in a pigtail, or at least tied back. This would help to prevent them from either contracting or spreading infection. It is especially important that the hair of children should be washed each week. Cleanliness more than anything else will tend to prevent verminous conditions. Often mothers find it very difficult to get the head clean again once it has got into such a state. Perhaps the most effectual cure for pediculosis or vermin in the hair is the paraffin poultice. Comb the hair with the small tooth comb first, and thoroughly wash it. When it is dried soak a piece of thick, old linen in paraffin, and apply it over the head. Above this put a piece of jaconette larger than the linen, and keep both in place with a bandage. Remove the old piece of linen and put on a fresh piece, soaked in paraffin, every twelve hours, and at the end of thirty-six hours the application is removed entirely, and the hair well washed. This is a most effectual way of dealing with pediculosis, but while the child has on this paraffin poultice it ought to be kept in bed to avoid risks of fire. If the first poultice is applied in the evening, it only means remaining in bed for one day after all, and it is well worth this and more, if such a troublesome, and indeed sometimes dangerous condition, is got rid of. When the child cannot be kept in bed or watched, hot vinegar may be used instead of the

paraffin to destroy the nits as well as the insect itself; but it is not always quite so efficacious as the paraffin, although, if properly applied, it usually does prove very good. Cleanse, wash, and dry the hair as before, and then, using the small comb dipped in the warm vinegar, moisten the hair very thoroughly with that. It is only by eradication of the nits, either by the paraffin or vinegar, that you can get rid of pediculosis, as this verminous condition in the child's head is called. Associated as it is with filth, neglect, and infection, it gives rise to various scalp ailments, such as impetigo, eczema, ringworm and favus. The two latter are infectious, so that a child suffering from either must not go to school, or ever share the brushes, soap, or towels which other children use. Neither should such a child sleep in the same bed with another.

Ringworm mostly attacks the scalp, but sometimes it is found on other parts of the body as well. That on the scalp, however, is the most serious and the most difficult to cure. When on a child's head scaly, bare patches are seen surrounded with short, irregular, dry, and broken hairs, he ought to be seen by a medical man at once, because delay only makes the ailment more extensive over the surface of the head, and far more difficult to cure. It takes a very long time to get rid of ringworm unless it is properly treated as soon as it appears, so that mothers ought not to experiment with home remedies in trying to cure a condition like this. If the doctor's instructions in regard to its treatment are not carefully, patiently, and persistently carried out, it may last for years, so that in the long run it really saves both time and trouble to persevere from day to day in doing whatever he advises, even if it may mean giving up a considerable amount of time each day to attend to the child's head. The scales and hairs from the head in those cases are highly infectious, so that

the child's brushes, towels, basin etc., must be kept in a place of their own to avoid the risk of others using them. When the hair is washed the water must be emptied away immediately. See that the hairs pulled from the scalp are burnt at once. The doctor will bid you keep the hair as short as possible, and it is well to make the child wear a little close-fitting cotton or linen cap, which can be burnt when it is soiled. A fresh one can be made very easily just with a piece of old linen. Cut a narrow piece of linen large enough to go round the child's head, sew the two ends of this together, and then cut a round piece of linen and sew it to the upper margin of the circle made first. This will help in preventing infectious particles of skin and hair from getting into the atmosphere. When you are told to apply some ointment, see that it is well rubbed into the bald patches with the pads of the thumbs.

Favus is another infectious disease of the scalp, but it is found as a rule only among ill-nourished and neglected children. Yellow patches appear on the scalp having a curious, mousey smell characteristic of this disease.

A disease called impetigo is sometimes seen about the hands and faces of children. It comes out in small patches, and dirty, raised, yellowish-brown scabs appear. While it lasts the child should be kept away from others, and medical advice should be sought.

CHAPTER XXI.

CARE OF THE TEETH. CLOTHING. EXERCISE.

Structure and functions of the teeth. The teeth are set in sockets in the jaws, and are held there by a kind of cement very much like bone. That part of the tooth which is visible is known as the *crown*, while the portion lying in the socket of the jaw is the *fang* of the tooth. Between those two parts is a constricted portion—the *neck* of the tooth. The teeth in appearance are hard like bone, but they are quite different in construction. If cut down from crown to fang the following parts are seen: 1. Outside at the crown of the tooth is a layer of very hard substance called *enamel*, and outside the fang the hard *cement* which fastens the tooth into its socket. The enamel consists almost wholly of mineral matter. It protects those structures of the tooth which lie inside it from germs, which are very apt to produce decay. 2. The next substance found inside the tooth is the *dentine*. This consists of beautifully fine and delicate tubes, with a large amount of mineral matter lying round and between them. The centre of the tooth is filled with what is known as tooth pulp, a very soft substance made up of tissue, which is very rich both in nerves and blood-vessels. These pass to it through a minute opening at the foot of the fang.

The purpose of the teeth is to masticate or break up the food very finely, so that the saliva and other

digestive juices may be able to mix with it properly. Two sets appear during a lifetime. The first consists of the *temporary* or *milk teeth*, and the second of what are known as the *permanent teeth*. The temporary teeth begin to appear about the sixth or eighth month in a child who has been wisely fed. The first to appear are two in the middle of the lower jaw, known as the central incisors, and then later the two incisors in the upper jaw begin to make their appearance. When the child is twelve or fourteen months old it ought to have twelve teeth, when two and a half years old there ought to be a complete set of twenty temporary teeth. The teeth in this set are smaller and fewer in number than are those of the permanent set, and when the child is almost six or seven years old they begin to fall out to make way for the permanent set. These, when the child reaches this age, lie ready under the temporary teeth, and push out those. There ought to be thirty-two permanent teeth. From the centre of each jaw we find eight teeth on either side. Beginning at the front we have two known as incisors first, then comes the canine tooth, next two bicuspid, and at the back of those three molars.

Care of the teeth. The wisdom of doing what we can to preserve the teeth is now quite recognised, because when they decay deficient mastication and impaired digestion must follow, and this leads to deficient nutrition of the body. There are certain organisms which have the power to produce materials which cause decay in the teeth. Those substances eat through the enamel of the tooth first, and once that is injured we very soon find the dentine beginning to decay. Next the tooth pulp is exposed, and its nerves become inflamed, and so toothache results. If the enamel of the teeth is thin and the dentine soft, decay proceeds very rapidly. This "soft" condition which we find in the teeth of some individuals is due to a

deficiency of mineral matter, and is very frequently the result of foolish feeding during infancy. Children fed mostly on foods containing much starch and sugar and little bone-forming material nearly always have bad teeth. Mothers should bear in mind the fact that the temporary teeth may as readily decay as the permanent set, and when they do, not only will the growth and health of the child be impaired, but the permanent set will probably be infected before they even appear. Therefore, in order to ensure a good set of permanent teeth, the child must be properly fed from its earliest infancy. Children ought to be early taught the use of the tooth-brush, and, when there is any appearance of decay, the teeth ought to be examined by a good dentist.

The preservation of the teeth depends very largely upon cleanliness. Decay is chiefly caused by the retention of fragments of food about the teeth. Those decompose and produce materials which eat into the enamel, and so the dentine is exposed, and soon commences to decay. To keep the mouth and teeth clean and wholesome they should be brushed morning and night and after each meal. This is not always possible however, and usually people are content with thorough brushing in the morning, and this may do very well so far as personal comfort is concerned. It is however really more necessary that they should be brushed at night, in order that any food collecting about them during the day may be removed. People can quite easily brush the teeth both on rising in the morning and before getting into bed at night. Remember that organisms or germs, as we call them, collect most about the sides and crown of each tooth, so that, passing the brush simply backwards and forwards along the outer margins of the teeth does not remove those. You must not only brush backwards and forwards along the outer and inner surfaces of the teeth, but upwards and

downwards, and along the grinding surface also. Cold water will strengthen the gums better than tepid, but never use water which is very cold, because extremes of heat and cold are a little apt to crack the enamel on the surface of the teeth. People generally use some specially prepared dentifrice, but you can have none better, if as good, as bicarbonate of soda or common salt. Perhaps the latter is the best, but choose some form of fine table salt, because if very coarse salt is used that may scratch the enamel. Decomposition in meat is due to action of germs, and you know how we use salt to prevent this process. Ulceration in wounds is also produced by germs, and in surgery a weak solution of salt is often used to help in preventing this. In the same way salt, used as a tooth powder, will tend to prevent any germs in the mouth from producing those acids which bring about decay in the teeth; but remember that there is greater virtue in thorough and regular brushing than in any form of dentifrice that you can choose. The choice of a tooth-brush is a matter of greater importance than most people believe. It ought to be neither too hard nor too soft. A hard tooth-brush will scratch the enamel, and one too soft will not properly cleanse the teeth. Often we see tooth-brushes displayed which are supposed to be specially adapted for cavities in the teeth. Remember that those are unnecessary, because such a cavity should not be allowed to remain. Decay of the teeth is infectious, and will quickly spread through the mouth, and so it is really important that a competent dentist should be asked to examine the teeth twice in each year.

In removing fragments of food from the teeth, a hard metal instrument should, on no account, ever be used. Anything like this will inevitably injure the enamel, and so lead to decay. A quill tooth-pick may be used instead, and the dental floss now sold for the

purpose is very good. Sometimes particles can be removed simply by drawing a silk thread between the teeth, and this avoids all risks of injuring the enamel.

It is sometimes argued that sweets do not injure the teeth, but this is a fallacy. They very readily ferment and produce very harmful materials.

Remember that medicines containing acids or iron are very injurious to the teeth, and must be taken through a glass tube. This precaution, however, is not sufficient to secure the safety of the teeth. After the medicine, the mouth ought to be rinsed with carbonate of soda and water.

Clothing. The objects of clothing are—1. To protect the body from cold and from injuries; 2, to regulate its heat; and 3, to adorn it. Our clothing should perform all those functions without in any way interfering with the work of any of the various organs of the body.

The amount and kind of clothing worn depends largely upon circumstances. It must be suited to climate and season, to the health of the individual, and to the amount of muscular work to be done. As a general rule the garment next to the body ought to be of wool. The chief advantage of wool as an article of clothing is that it is a bad conductor of heat, and so it does not readily carry away the natural heat of the body but retains it. This feature in a woollen material is due principally to the fibres of the wool, but also to the fact that you always have a large amount of air entangled in the meshes of a woollen garment, and air is the worst conductor of heat that there is. Thus we find that a garment made of wool prevents much loss of heat from the body. In another way woollen material prevents chilling of the surface of the body. It very readily absorbs moisture, but it only evaporates it slowly. Rapid evaporation always means more cooling of the body's surface. If wool cannot be worn as the garment in contact with the

skin, silk or some of the cellular materials now manufactured should be used instead. Unfortunately the former is too expensive to be generally popular. The latter is warm owing to the air spaces which it contains. A material which has air entangled in it is usually warm. For this reason clothing which is frequently washed is warmer than that which is not, because in a soiled garment the air spaces become more or less blocked up with the skin secretions and the scales shed from the epidermis. Cotton and linen are good conductors of heat, and therefore a garment of one of these is less warm than one made of wool; also they allow moisture absorbed to evaporate quickly, and this causes surface cooling.

Because of the layers of air between them, two garments are warmer than one of the same material, even although the two when put together may be no thicker or weigh no more than the one. Tight clothing is less warm than that which is loose, because, when clothing is tight, you do away with the layers of air which otherwise would collect between the garments, and, besides this, the circulation of the blood is interfered with.

The warmth of the clothing worn depends to some extent upon the colour of the outer garment. If that be one which will readily absorb heat from the atmosphere, then the body will be, to some extent, kept warmer. Black and dark colours, such as dark blue, dark green, and brown, make warm outer garments, because they readily absorb heat. White and light colours absorb much less heat, and so they are suited for hot climates and the warmer seasons of the year.

I have already referred to the importance of not compressing any part of the body with tight garments. If the vessels of the scalp are compressed by a tight or heavy hat, neuralgia or baldness may ensue. A tight collar round the neck causes congestion of the vessels about the face and head. Tight garments

compressing the chest and abdomen interfere with the work of the heart and lungs, with the circulation of the blood throughout the body, with the action of the diaphragm, with the liver and its functions, with the processes of digestion, and may displace internal organs, with serious results.

Perhaps there is no article of our attire so apt to be faulty as the boot. It ought to fit the foot accurately, yet without the least constriction, and it should be flexible yet strong. The great toe ought



FIG. 56.—Taking outline of foot.

to be in a line with the inside of the foot, and the heel should be low and broad. The shape of the sole should be taken by drawing a pencil line round the foot when its owner is standing so that the sole will be expanded by the body's weight. The boots should be made according to the measurements so procured, and even in a new boot the wearer ought to be able to move all the toes with freedom. Shoes are usually supposed to be more hygienic than boots, except in wet weather.

There is still a tendency to overclothe the body, and especially I have noticed this among children of the

working class who wear all sorts of odds and ends above the ordinary attire. Too much clothing only tends to make an individual more liable to chill. Then it does not always tend to keep the body warmer, because the amount of heat produced by the body is regulated by its needs, and consequently excessive clothing makes lessened need for heat production, and the individual is really no warmer for the burden of extra clothing. Girls in particular should be dressed more simply, then not only would they be clothed more cheaply, but there would not be danger of internal organs being interfered with by tight garments, or twisting of the spine from an excessive weight of clothing hung from the waist. Over-dressing and indulgence in cheap, shabby finery are bad both for the health and morals of girls.

Of course while avoiding too excessive clothing one must still see that children have clothing enough to keep the body warm. In regard to this as much depends upon the kind of garments chosen as upon their number. Under is quite as injurious as over-clothing.

All garments worn during the day should be removed at night, and that worn during the night should be loose, and the clothing in the bed light.

Exercise. Nothing is more likely to promote health than plenty of exercise in the open air, and the people who have most of this are always the healthiest. It increases the strength of the heart's action, so that the blood is sent more quickly through the body to carry nourishment to the tissues, and rid them of their impurities. It improves the appetite so that more food is taken, and it makes the muscles stronger and harder.

Walking is a form of exercise which is within reach of every healthy individual, and is the most health-giving exercise possible. The amount of exercise required by different individuals to maintain health

in the body varies, but everyone should have a walk daily no matter what the weather may be like. Bad weather, if you are in health, should never keep you indoors for a whole day, and one very soon becomes accustomed to changes in the weather. In becoming used to those variations, you are much less likely to fall a victim to rheumatism and other ailments from which people are liable to suffer during the colder seasons of the year. We read that it is while they are in barracks that soldiers suffer from colds and ill-health, not while they are on the march.

The great advantage of walking as a form of exercise is that it must be taken in the open air, and to get the full benefit of this the body should be held erect, and habits of deep breathing should be cultivated. Such exercise taken habitually strengthens the nervous system and makes you more cheerful and fit for work, it improves digestion, lessens tendency towards disease, and helps to promote length of life.

CHAPTER XXII.

CARE OF INFANTS.

OF late years an enormous amount of literature has been written on the subject of infant-rearing, and mothers are having brought home to them their great responsibilities in regard to this—responsibilities far more serious than most of them realize, because the health of the individual, both mental and physical, in after years is very largely dependent upon his conditions of life during infancy. Thus, although a baby, fragile and helpless though he be, if endowed with a fairly healthy constitution has often a wonderful power of making good use of what food and service may be offered him, the fact is no excuse for indifference in choosing the food most suited to his requirements, or for carelessness in regard to his surroundings and general conditions of life.

Wrong feeding is the greatest evil against which those interested in reducing the appalling infantile mortality of to-day must contend. There can be no disputing the fact that the natural, and most undoubtedly the best food for the child is the mother's milk. For the first six months of life there is no other which can adequately replace it.

To understand the requirements of the baby in the matter of food, a little elementary knowledge of the physiology of infancy is indispensable. In the ordinary adult the first part of the digestion of

food is accomplished in the mouth. There the food is masticated, and if this process is properly performed, it becomes very thoroughly mixed with the saliva which digests any starchy materials contained in it. Now, in addition to the fact that until the child is five or six months old the teeth will probably not have begun to appear, one must also realize the fact that until the child has reached this age the saliva will not be properly developed, and consequently the baby has not the power to digest foods containing starch, such as bread, potatoes, rice, and the so-called "infant foods." Such foods should not be given to a baby until he is eight months old, and most babies do very well without any addition to the milk which composes their diet until they are nine months old.

In the stomach of the baby the gastric juice is usually fairly well developed, but still it is much weaker than in the stomach of an older child. Added to this there is another peculiarity in the infant's stomach which prevents the food from becoming so readily mixed with the gastric juice as it is in the case of an ordinary individual; and to those circumstances is due the difficulty which many babies have in digesting cow's milk.

Then a baby must have a certain amount of easily digested fat in its food. Too little of this constituent in the diet is one of the commonest mistakes made in feeding the infant artificially, and very often it leads to rickety conditions and to malnutrition in the child.

Breast feeding. We find that the food which most perfectly supplies all the requirements of infancy is the mother's milk, and, unless in exceptional circumstances, it ought to be the one food of the child *at least* until he is eight months old. Too often laziness on the part of the mother is the only real cause of the baby's being deprived of this food so adapted to his peculiar needs, although in those cases ill-health in the mother is often made the excuse for

artificial feeding. The doctor ought always to be asked to decide whether the state of the mother's health is such as to make the weaning of the baby advisable.

Oceasionally one hears a mother complaining that her milk does not suit her baby, but a little care and attention in regard to her own diet will often lead to the discovery that with herself lies the power to make the milk easily digestible and a nourishing food for her child.

Another common complaint from the mother is that her milk is poor in quality, but if the baby is increasing in weight as it ought to, the milk must contain all the nourishment required. Weight is largely a matter of individuality, but usually at birth the child weighs 7 to 8 lbs., at six months 16 lbs., and at a year old 23 lbs. Of course a naturally small child may be growing quite satisfactorily and weigh less than the figures given.

Complaints that the child constantly suffers from hunger are common, but this condition is very often due to too frequent feeding. If the baby is fed at regular intervals for a time, this apparent hunger will, in all probability, disappear. Once again let me emphasize the fact that the doctor ought to be consulted before you undertake the very serious responsibility of replacing what is the natural food of the infant with some other, inevitably of a different standard.

When the mother is nursing her child she ought to give careful consideration to her own diet. It should be composed of wholesome, nutritious foods, such as meat in moderation, pudding, bread, oatmeal, beans, lentils, peas, etc., with at least a pint of milk in the twenty-four hours. Should she find that she is apt not to have a supply of milk sufficient for the baby's needs, let her take a breakfast cupful of gruel and milk half an hour before feeding the child. The nipples ought to be washed after each time the baby is fed, and, if they are sore and cracked, they should

be rubbed with some healing ointment such as that made up of equal parts of boracie ointment, lanoline, and plain vaseline. Wash this off before feeding the baby again. Much might be done to prevent those sore and ulcerating breasts if, for a month before the baby's arrival, the mother would regularly wash and then rub the nipples and surrounding skin twice each day with methylated spirit.

While she is nursing her child the mother should lead a quiet healthy life, with a fair amount of exercise in the open air, yet without carrying this far enough to cause fatigue. She must, of course, rest in bed for some time after the baby's birth, and no very active work or exercise should be allowed, if possible, for the first six weeks. After that she ought to take a moderate amount every day, and walking exercise is the best. Indeed, a certain amount of exercise in the open air is quite necessary if breast feeding is to be efficient.

Artificial feeding. No doubt circumstances do exist at times which make it unwise for the mother to continue to nurse her child, and then, as a rule, cow's milk is found to be the most available and the most suitable food for the infant. At its normal standard, however, this is not quite adaptable to the needs of the child, and so it has to be altered somewhat. In my lectures I very often demonstrate the difference between human milk and cow's milk by putting a little of each into test-tubes, and then adding to both a few drops of hydrochloric acid. A very significant change takes place in each of the tubes. A dense mass of curd forms in the cow's milk, while in the human milk only fine, flocculent particles are to be seen. It is then easily understood that the mother's milk must be infinitely more digestible than the other, more especially when one remembers that hydrochloric acid composes part of the juice acting upon the milk in the stomach. Generally, to bring the cow's

milk nearer to the standard of human milk and so improve its digestibility, rather more than an equal quantity of plain water is added, but sometimes, even when the milk is so diluted, a tough curd is formed when the milk reaches the infant's stomach. Dilution with some thickened water like barley water may overcome this difficulty in some cases, but, as a general rule, plain water is the best. Barley-water contains starch, and, even although this is present only in small quantities, it may to some extent interfere with digestion. Occasionally whey is the diluent which the doctor advises, and directions for its preparation are given elsewhere. More efficacious than any of these is a little lime water added to the milk and water, but this certainly carries risks of constipation, so that the advice of a medical man should be sought when the condition of the digestive organs seems to indicate the necessity for its use. In cases where the digestive organs are very feeble, it becomes necessary to peptonise the milk for the child. This is most easily accomplished in the home by the use of Fairchild's peptonising powders. Those are sold in small tubes, and directions for their use are given on the box containing the tubes. The milk to be peptonised is placed in a clean tumbler. Then the quantity of peptonising powder required for the amount of milk to be prepared is mixed in a teaspoonful of the milk, and this is stirred into the remainder of the milk in the glass. Next place the glass in a bowl containing water at a temperature of 105° to 110° F., and allow it to stand in water kept up to this temperature for ten minutes. After this interval it will usually be in a condition in which the child will digest it properly.

Sometimes cream is added to the baby's milk to avoid any deficiency of fat, but usually in towns there is very considerable difficulty in procuring cream which is fresh. The best and safest way in which

to get an added amount of fat in the milk is to fill a jug with fresh milk, and then, after a few hours, pour off the top half of this, and keep it for the use of the baby. The additional fat procured in this way is easily digested, and will be found greatly to improve the nutrition of the child.

Cow's milk is slightly deficient in sugar, so that a very small quantity of this should be added to it when preparing a meal for the baby.

One great disadvantage connected with the use of cow's milk in place of the mother's is that it is not infrequently a means of conveying disease. Germs grow and multiply in milk with great rapidity when they reach it, and so they may be transferred in the milk to the tissues of the child in a very active, growing condition. Germs may reach milk from various sources. When newly drawn from a perfectly healthy animal it is quite pure; but there can be no disputing the fact that a very large percentage of dairy cows are tuberculosed, and milk from such an animal probably contains the germ of tubercle. Apart from this, milk may very readily be contaminated from the hands of those who are milking, from the utensils used, or by standing in an atmosphere which is impure. Unless one is absolutely sure of the purity of the milk supply it should be specially prepared for the baby, and usually sterilisation or boiling is the method adopted. One of the tin sterilisers sold for this purpose may be employed for its preparation; but if this is not available heat the milk in a saucepan, stirring it meanwhile so that all parts of it may reach the same temperature, and the moment that it reaches boiling point take it from the fire. Then cool it as quickly as possible, avoiding all risks of contamination. If lime water is to be added to the milk, do this before, and not after, boiling.

The most perfect cleanliness is absolutely essential in all things connected with the baby's food, and so

the old-fashioned, boat-shaped bottle should be used, and never one with tubes. The latter carries with it serious risks, because of the impossibility of keeping the inside of the tube perfectly clean. To a certainty, even in cases where great care has been exercised, the inside of the rubber tube is sure to become coated, more or less, with milk and bacteria. The bottle ought to be of such a shape that when it is cleansed every corner of it can be got at with a brush. Be very careful in regard to this that no bristle from the brush remains in the bottle, because if the child swallows this the result is apt to be most serious. The rubber nipple should be so large that it can be turned outside in for cleaning purposes. See that the hole is not so large as to cause the child to take the food too hurriedly, or indigestion will result. On the other hand if the hole is so small that it requires forcible sucking to bring the milk the baby becomes tired before he has taken all the food that he requires, and consequently defective nutrition may then be the result. When the child has finished a meal any milk left in the bottle should be poured away, and on no account should it ever be heated up a second time. The bottle should be washed first with cold water, and then in hot water with a little soda. Next place the bottle in a bowl, and pour boiling water over it and leave it in cold until it is required again. To prevent cracking of the bottle, owing to the high temperature of the hot water, each bottle ought to be put into a saucepan of cold water when it is procured, and this is brought gradually to boiling point. This process will ensure that later the boiling water can be poured over it without the possibility of its cracking. Should it crack during this process of boiling, the makers will usually be prepared to replace it, as then the glass must have been inferior. It is a wise plan to have two bottles, each to be used alternately. Where proper attention is not given to

keeping the bottle clean, sickness, diarrhœa, malnutrition, and ill-health are sure to result from the sour particles retained in a half-cleaned bottle.

There is still a great tendency to feed the baby at too frequent intervals, and when a baby is fed by the cry instead of by the clock he is simply trained to cry. Besides this, if feeding is too frequent the baby's stomach does not get the intervals of rest it requires, and as a result of overworking this organ, indigestion and consequent malnutrition are established. Although a baby cries one must by no means conclude that he is hungry. Crying is just as likely to be due to indigestion, and to feed the child in order to stop the crying is very apt to increase its discomfort. If fed at regular hours his stomach will be in a condition before each meal in which it can act upon food. There is no need to wake him for a meal; one may rely upon his waking when food is required.

The following table shows the amount of food usually given, and the intervals which should elapse between meals, when the child is awake.

FOOD TABLE FOR A HEALTHY INFANT.

Age of baby.	Milk.	Water.	Number of Meals in 24 hours.	Intervals.
1 month.	About 3 to 4 teaspoonfuls and towards the end of the month 1 to 2 tablespoonfuls.	1 to 2 table-spoonfuls.	10 to 12	2 hrs.
2 months.	3 tablespoonfuls.	4 "	9	2 to 2½ hrs.
3 "	4 "	4 "	8	3 "
4 "	5 "	4 "	8	3 "
5 "	6 "	4 "	7	4 "
6 "	8 "	3 "	7	4 "
7 to 9 months.	12 "	0 "	6	4 to 5 "

Of course, it is impossible to keep to any hard and fast rules in regard to the quantity to be taken at each meal. That depends largely upon individuality; one child will thrive well upon small quantities, while another apparently requires a much larger amount of food. If a baby is fed at regular intervals one may rely upon him to know when he has had enough at one time. The best guide as to whether the child is taking enough food is to be had by weighing him regularly. Provided he is increasing satisfactorily in weight, he is evidently taking a sufficient amount of milk. The baby ought to be taught to take the food he requires in about a quarter of an hour. He should never be allowed to prolong the meal by sucking just at intervals throughout an hour. Neither should the bottle be kept beside him in bed to allow of his sucking from it when he feels inclined. Such a habit invariably produces fermentation in the milk to a greater or less degree, and this must result in gastric disturbances in the child.

Infant foods. People repeatedly ask which is the best infants' food to give to the baby, but there is not one of the advertised infant foods so good as ordinary milk for the child, and, until he is eight months old, or, better still, nine, he should be fed upon milk, and milk alone. To the use of the so-called "infant foods" during infancy is due a large amount of ill-health among young children, and they contribute in no small degree to the excessive mortality among infants at the present day.

Additional food. When the baby is old enough to have some other food in addition to milk there is no necessity to go and buy some widely advertised and expensive infant food, because equally wholesome and nutritious foods can be procured at a much smaller cost. Rusks soaked in milk, oatmeal gruel with milk, baked flour in milk, are all excellent foods for the child. To prepare this flour place it in a plate or a

small pie-dish, and bake it in a very slow oven for eight hours. At the end of this time it will be ready for use, and should be of a creamy colour, but never brown. When an oven is not available place a quantity of flour in a jam jar, cover this, and place it in a sauce-pan with boiling water up to the level of the flour. Keep the water surrounding the jar at boiling point for eight hours, after which the flour should be scraped down if hard. Mix this flour so prepared smoothly in a small quantity of the milk before adding it to the whole.

If the baby is increasing in weight as it ought to there is generally no necessity to give any food in addition to milk until he is nine months old, and alterations in his diet must be made very carefully. For the first week, when commencing to give additional nourishment, only one meal a day of any of those light consistent foods which I have mentioned should be given, during the next week there should be two meals of this kind of food, during the third week three, and so on until at last the baby ceases altogether to have milk as the sole constituent of any of his meals, although it must still continue to have a very important place in his dietary. In cases in which the child has difficulty in digesting his food the doctor's advice should be sought as to which food is the best for the particular baby. As a rule, any of the simple foods of which I have spoken will suit very well the needs of the baby until he is a year old. Further changes in his diet should be made carefully. A little fresh fruit or well-cooked vegetables are very good occasionally, and a lightly boiled egg is an excellent food for a child once he is a year old. Give only part of the egg, however, on the first occasion, because, no matter how much a child may appear to enjoy it, too much at first might give rise to indigestion.

A baby ought to be taken out every day. Even in stormy weather this will do the child no harm if he is

properly protected by a mackintosh and a cover for the perambulator. He will soon become accustomed to changes of weather, and becoming so accustomed will help to overcome tendencies to cold and chill. Keeping the baby from every breath of wind only leads to delicacy in the child, although at the same time he must always receive proper attention and care, and when he is taken out one must see that his clothing is adequate for protection from cold. The habit of allowing the baby to sleep out of doors in his perambulator is a very good one, so long as he is warmly clothed. He thus gets the benefit of good fresh air, and his sleep is likely to be more prolonged and of better quality than when taken indoors.

The baby ought to be bathed daily, and at least an hour should intervene between this and the last meal. The temperature of the water should not be too high: about 98° F. for the first few weeks, gradually falling to 95°. See that all the creases found in a baby's body are washed and properly dried, because carelessness in drying his skin is very apt to give rise to irritation. A little powder will ensure more thorough dryness of those parts which are apt to escape the towel. Don't use too much soap, and let what is used be perfectly pure and not of a kind likely to cause irritation. Soreness in a baby's skin can almost always be prevented, and it is largely due to neglect. When a part does become tender and sore apply some greasy ointment, such as that composed of equal parts of boracic ointment, lanoline, and plain vaseline. No baby will ever thrive unless he is kept clean, and in connection with this the diapers must never be used twice without washing. Drying may avoid discomfort so far as the moisture is concerned, but it can never remove from them certain matters which are liable to cause irritation.

The baby's clothing should be warm, but never heavy or at all excessive in amount. A flannel binder

about $4\frac{1}{2}$ inches broad should be wound one and a half times round the body. This should not be so tight as to interfere with the muscles, and organs contained in the abdomen. The remainder of his underclothing should be soft and warm, but never so long as to lead to any excessive weight. Cambric is better than flannel for the upper garment, because if the latter is spotted with milk, as at times it will be, an unpleasant odour is discernible. Apart from this the frequent washing necessary to keep the upper garments spotless causes a woollen material to harden.

A warm shawl is much better as an outdoor garment for the baby than a cloak, and a soft, lightly woven bonnet is preferable to a hat, especially if the child be in the habit of lying in the perambulator. As he reaches a stage when he can sit up in the arms, the clothing should be shortened to allow of free movement for his muscles.

The habit of giving the baby a "dummy" to suck in order to keep him quiet is one distinctly to be condemned. There can be no doubt that it is very frequently a means of introducing germs of disease into the tissues of the child. This is of course the main objection to its use, but added to this the flow of saliva is stimulated by it, and when this is produced in excessive amount the digestion of the child may be impaired.

When the teething period comes on try to promote sleep as much as possible by keeping the baby out of doors. A simple, healthy life on the part of both mother and child will do much to aid in getting over this much dreaded period in a baby's life with a minimum of discomfort; but upon no account should the "teething powders" sold, ever be given, because they frequently contain opiates which are most harmful to the child. Never use hard instruments to "rub through" the teeth, because this only tends to harden the gums, so that cutting the teeth is made more

difficult, and, besides, there is always the risk that anything hard like this may cause injury to the enamel of teeth already cut, and so, at a later period, produce decay. The best thing to do is to wash the hands and dip the finger in a little boroglycerine, and then rub the gums with the finger.

I think that castor oil is still too frequently given in cases of constipation. It may cure the condition for the day, but it is liable to cause still more obstinate constipation later. A teaspoonful of cream often serves the purpose equally well, without this tendency to further constipation afterwards.

On occasions when constipation is troublesome much can be done, sometimes, by massaging the abdomen. Put a little olive oil on the palm of the hand, and commencing at the lower part of the abdomen, on the right side, rub *gently* upwards, across the upper part, and then down the left side. Observe that the rubbing must be from the right to the left side, otherwise it may do more harm than good. Sometimes when, owing to constipation, the motion is so hard that it cannot be passed, a small glycerine suppository does good, or a small cone-shaped piece of soap may be passed into the bowel. A warm enema is still more effectual, but this should never be given to a young baby by any unskilled hand. The building up of regular habits in the child is the best means for the prevention of constipation.

In ordinary cases of diarrhoea castor oil does good, but when the ailment persists the doctor should be called in to advise as to the treatment to be used. In such cases it is the part of those in care of the child to see that the surroundings are healthy and pure, and that the child is kept quite warm. Special attention will be necessary in dieting the child, and always in regard to this observe strict cleanliness.

Flatulence is another troublesome ailment where babies are concerned, and this condition may be due to

constipation, to excessive feeding, to inability to digest the food, and often it occurs in conjunction with diarrhoea. In order to guard against it, try to make the baby's food more digestible, and if he is being bottle fed, be absolutely sure that his bottle is kept perfectly clean. See that he does not take his food too hurriedly, because this is very frequently the cause of flatulence. For individual attacks try such simple remedies as rubbing the stomach with a little warm olive oil, a hot fomentation over the abdomen sometimes improves matters, but be careful not to burn the very delicate skin of the child. A teaspoonful of dill water in four teaspoonfuls of hot water sometimes gives relief.

Before closing this chapter, allow me to impress upon you once more the fact that cleanliness and careful feeding is the keynote to the successful rearing of a baby. Food, skin, clothing, the home and its atmosphere, must be kept as pure and clean as possible.

CHAPTER XXIII.

CARE OF THE NURSE'S OWN HEALTH.

IF you are to be the help that you ought to be to your patient throughout the course of an illness it is important that, so far as is possible without neglect to the sufferer, you should attend to those things which are likely to make you strong and more able to perform the duties required of you. It is really to be regarded as part of the nurse's duty to her patient to try to preserve her own health so far as, without selfishness, she can. No one can possibly be at her best in her work unless the body is in good health, and remember that your patient needs all your strength. If you allow yourself to get into a bad condition of health every duty seems a burden, and you will not be able to go about your work in the cheery, strong, decisive way that you should if you are to make your patient feel that it is no burden to have to care for all his needs, but rather a source of real pleasure. We see in cases of neurasthenia how, owing to this condition of nervous debility, an unselfish person often becomes utterly selfish and exacting. Hence, if you avoid getting too worn-out and over-tired, so far as you can without sacrifice to your patient, and attend to what will help to keep you well, you will be able without effort to think of your patient first and of yourself last of all. Also,

you will be able to look at things from a brighter point of view, and this is important, because we find that the patient takes very much the same outlook in regard to his case that those nursing appear to have, and it is not only strength of body that you will have to lend very often, but strength of mind as well. By attending to your own health you will not only have greater strength and less weariness physically, but your mind will be clearer and more alert to think of all the little ways in which you could add to the sufferer's comfort, and so save his strength, and help towards more speedy recovery. Attention to your own health will not only make you more able to nurse your patient well, but you will run less risk of becoming ill, and so adding to, instead of lessening, the unhappiness in the home. Particularly in nursing infectious cases it is important that you should do what you can to retain your health, so that you may be the less liable to contract the disease from which your patient suffers.

Perhaps the greatest difficulty in connection with the preservation of the health of those who are nursing, lies in arranging for a fair amount of sleep, and, if you are doing the nursing single-handed, this is often impossible. Remember, however, that if you can get some really reliable person to come and sit with the invalid at times, the little change will often be quite good for him. One hour, or two, of sleep away from the sick-room is, I find, better than several in it, because then you have not the subconscious, mental strain of feeling that your patient may want you at any moment. When you hand over your charge to someone else, write down everything that is to be done, and, in order that your patient may not suffer, report any little likes or dislikes that he may have in regard to the arrangement of his pillows, lifting, the manner in which he is fed, or any other details of nursing.

When you are nursing try if possible to get six hours of sleep each night, and should you find that circumstances will not allow of this, try to make up that amount by snatches taken in the day-time. When the state of your patient permits, it is really important for his sake as well as your own that you should have six hours of sleep out of the twenty-four if possible. When sleeping in the same room with your patient, have your dressing gown always at hand so that you may be able to attend to his wants instantly.

You may have very little desire for food, but force yourself to take a sufficient amount for the needs of the body, because you must, for your patient's sake, maintain its strength. Moreover, good, light, nourishing food will tend to counteract the bad effect that overstrain, anxiety, and want of sleep might have in producing irritability, depression, and weariness. When it is possible avoid taking your food in your patient's room. You cannot eat so well there, and it is not good for him.

Try to get out into the open air each day, even if it be only for a little while. Even a walk round the garden, I find, often makes one feel so much better. If you can arrange to have a good smart walk of an hour's duration each day, this will do much to maintain your strength and fitness for work, and, especially if you have been up all night, the effect of a walk like this in the open air is quite wonderful.

COOKING FOR INVALIDS.

SOUPS, MEAT TEAS, ETC.

Beef Tea. Get 1 lb. of very lean, new and juicy meat, and rub it with a clean, damp cloth. Trim away all fat, and then, with a knife, tear it up into shreds, passing the knife in a line with the fibre of the meat. Put 1 pint of cold water into a jam jar along with a little salt and add the torn fragments of meat. Place the jar in a cool place for half an hour so that any soluble matter in the meat may pass into the water. At the end of that time place the jar in a saucepan with cold water, and heat this slowly to a temperature of 170°F . Keep the water surrounding the jar at this temperature for three hours. The meat inside the jar is very apt to get into a solid mass, and so, from time to time while the tea is cooking, one must take two forks and draw the fragments of meat apart, pressing them up against the sides of the jar. After three hours stir up the beef tea in the jar and pour off the fluid, holding the meat back with a table-spoon. Next put the fragments of meat into a coarse strainer, and, with the back of the spoon, squeeze every drop of juice from the meat. A fine strainer ought never to be used in making beef tea. After the tea has been standing for a little two layers will be seen, a lower with flaky, solid particles in it, and an upper layer quite clear. It is the lower layer which contains any nourishment in the tea, so that

you must remember to stir it before using any for the patient. Remove all grease from the top with pieces of soft white paper. Sometimes a patient prefers beef tea which has been cooked in an oven instead of that prepared by the method described, because then it has more flavour. See that the oven in which the jar is placed is a slow one. The tea will require to be cooked for longer than when it is prepared in the ordinary way.

A convalescent patient often likes to have a little flavouring added to the beef tea. Then tie up inside a muslin bag a cupful of fresh vegetables well washed and cut into small pieces. Make, a bay leaf, celery, onion, turnip, parsnip, mint and carrot may be used, but don't put in too much of any one of those. The fireproof jars, sold with tight-fitting lids, are excellent for the making of beef tea. Occasionally a patient likes his beef tea with some thickening added, and thus one can give added nourishment. You can use for this arrowroot, or breadcrumb which has been rubbed through a fine sieve and baked for a little. A very good thickening to use is baked flour. Prepare this by baking it in a very slow oven for eight hours, or put the flour into a jam jar well covered and place it in a saucepan surrounded with boiling water. Keep the water boiling for eight hours, and when the flour is ready it ought to be of a creamy colour but not brown, and it should have a pleasant, nutty flavour. A small quantity of this can be mixed smoothly in a little beef tea, and then it is stirred into what you are heating in the saucepan. Beef tea may be thickened with oatmeal, and then a heaped tablespoonful of oatmeal is mixed with a tumblerful of cold water and allowed to stand for half an hour, but stir it frequently. Strain the water from it through a fine sieve, squeezing all the moisture out of it. Add to this fluid the upper clear layer in the beef tea and boil both together for five minutes, stirring all the time. Then add the

flaky layer, but after this don't allow the food to reach boiling point. Sometimes the meat fibre is given along with the tea. Then make the tea as described, and then the meat, after the water has been strained off it, is pounded in a mortar and rubbed through a fine, strong sieve. This makes a most nutritious form of beef tea, but is less digestible than that prepared in the ordinary way. Unfortunately, too, patients sometimes object to beef tea when given in this very concentrated form.

Raw Beef Tea. Tear $\frac{1}{4}$ lb. of lean, juicy meat into shreds, as in making the ordinary beef tea. Put those into a jar with 8 to 10 tablespoonfuls of cold water and a pinch of salt. Beat up the meat into the water, and keep it in a cool place for half an hour. Then strain off the tea.

Essence of Beef. Get 1 lb. of lean meat, trim away all fat, and then tear it into shreds. Put these pieces next into a jar, add a little salt, and then cover the jar with buttered paper. Place the jar in a saucepan with cold water and heat this. Keep the water simmering slowly for about four hours. Occasionally, with two forks, separate the fragments of meat from each other, pressing them up against the sides of the jar. Be careful to add more hot water occasionally to that in the saucepan. When the juice is ready strain it through a fine strainer, pressing all the juice from the meat with a spoon.

Meat Juice. Get $\frac{1}{4}$ lb. of very lean and very new meat. Trim away all fat, and mince it quite to a pulp. Put 6 tablespoonfuls of cold water into a bowl and add to this 20 drops of *diluted* hydrochloric acid. Then stir the meat pulp well into the water and place the mixture in a cool place for four hours. Get a piece of new muslin and wash all starch from it. Put a dessertspoonful of the meat pulp into this and squeeze all the juice possible from it. The pulp left behind should be of a very pale, bleached colour, and the

juice from the meat is bright red if it has been properly made. Put another dessertspoonful of the pulp into the muslin and squeeze the juice from it. Go on in this way until you have got all the juice from the meat. Give two tablespoonfuls in a coloured glass, flavoured with a little salt and pepper. Notice that, each time that the juice is made, a fresh piece of muslin should be used, because, no matter how carefully you might wash a piece which has already been used for straining off the juice, minute particles of the meat will adhere to it, and those, putrefying, will produce a certain amount of acidity in the muslin, which is quite enough to cause the juice to be brown and sour, and so quite unfit for the patient. Everything used in the preparation of the meat juice must be scrupulously clean, and the meat procured should be very new. A patient usually likes this meat juice, but he must never see it made.

Beef Purée. Have $\frac{1}{2}$ pint of beef tea and put it into a saucepan. Trim away any fat from $\frac{1}{4}$ lb. of lean and juicy meat and rub it with a damp cloth. Tear it up very finely into shreds, and then pound it well in a mortar and rub it through a strong, fine sieve. Next put this meat into a cup or small soup basin and pour the hot beef tea over it. Flavour with salt and pepper and serve while still hot.

Mutton Broth. Get 1 lb. of neck or knuckle of mutton, wipe it with a damp cloth, and cut it up into small pieces. Put these into a clean saucepan along with 2 pints of cold water, a little salt and pepper, about a teaspoonful of parsley chopped finely, along with small pieces of onion, celery, turnip, and carrot. Allow the broth to simmer very slowly for about four hours, removing grease from the top at intervals. Strain the broth through a fine sieve and let it cool. Remove any fat from it with a soft, white paper and heat it up as required.

Sometimes a tablespoonful of pearl barley or rice is

well washed and then boiled into the strained broth until it becomes soft.

Thin Mutton Broth. Get three chops and trim away fat and skin. Chop the meat into small pieces, put them into a pan with cold water and a little salt. Keep the water simmering for about three hours, strain, and when cool remove all fat.

Veal Broth. Chop up 1 lb. of lean veal and put it into a saucepan with 1 quart of cold water, adding a little salt. Keep this simmering for three hours. Strain, cool and remove all fat. Two tablespoonfuls of rice or pearl barley can be washed, soaked and boiled soft, to be added to the broth in order to make it more nutritious.

Chicken Tea. Skin the chicken, cut away the meat from the bones and chop up both bones and meat. Put meat, bones and the skin into a jam jar. Remove the hard, outer skin from the feet by dipping them into boiling water and pulling it off. Break them up into pieces and put those into the jar also. Remove the gall bladder from the liver and the bag of stones from the gizzard. Wash liver, gizzard, neck and heart, chop them up and add them to the bones and meat in the jar. Put 2 to 3 pints of cold water into the jar and add a little salt. Stir up the fragments and water together and place the jar in a cool place for about half an hour, then cover it with a buttered paper and put it into a saucepan with cold water. Heat slowly and keep it simmering for five hours. Strain off the tea, allow it to cool and skim off all fat. Heat when required, and often I find that a patient likes a little nice fresh cream added to the tea, and in this way you can give added nourishment.

Chicken Broth. Skin the fowl, cut the meat from the bones and chop up those. Cleanse the giblets as before and put all into a saucepan with from 2 to 3 pints of cold water and the necessary salt. Heat slowly, and keep the broth simmering slowly for

about 4 hours, skimming away fat as it collects on the surface of the water. Strain the fluid off through a fine strainer and then put it back into the saucepan with a dessertspoonful of pearl barley, which has been washed and soaked for some hours, or with the same quantity of rice previously washed. If desired this broth can be thickened quickly with the yolk of an egg instead of with rice or barley. Beat up the yolk of an egg and add it to the broth just before giving it to the patient. Arrowroot too makes a useful thickening, and can be more quickly added to the broth than rice.

Essence of Chicken. Prepare the chicken in the same way as you would for chicken broth. Put all the pieces into a jar without any water. Cover the jar very closely with a piece of strong, greased paper tied round the top of it. Place the jar in a saucepan with cold water and keep this simmering for six or seven hours. When the water boils down in the pan add more from a kettle kept hot for the purpose. Put the contents of the jar into a fine strainer, and, with the back of a spoon, squeeze out all the juice. Give in small quantities with a little salt.

Restorative Soup. Get 1 lb. of neck or knuckle of veal, 1 lb. neck or knuckle of mutton and 1 lb. of juicy beef. Shred up the meat, and so far as possible chop up the bones. Put meat and bones into a saucepan with $3\frac{1}{2}$ pints of cold water, a little salt, a small onion, five cloves and a little mace. Simmer for five hours slowly and strain through a fine sieve. Remove any fat when cold and heat up as required.

Rabbit Soup. Clean and wash a rabbit thoroughly, separate the meat from the bones and cut it into small pieces. Chop up the bones. Put all the pieces into a saucepan with 2 pints of cold water and a little salt. Add a few stalks of parsley, a bay leaf and a little celery. Simmer for five hours, keeping up the supply

of water, and strain. Pound the meat and rub it through a fine sieve. Rinse out the pan and put into it a piece of butter about half the size of a walnut, and add to this one gill of cream. Mix $\frac{1}{2}$ ounce of flour to a smooth cream in cold water, put this also into the saucepan along with the fluid strained from the meat and also the meat pulp. Bring all slowly to the boil, stirring all the time.

Game Soup. Get a grouse, small pheasant, woodcock or partridge. Separate all the meat from the bones and chop up both. Put the pieces into a saucepan with $\frac{1}{4}$ lb. juicy beef torn in shreds, 2 pints of cold water and a little salt. Keep the water simmering slowly for four or five hours. Strain, and when cool remove all fat. Heat when required, and if you wish to thicken the soup, make up a little arrowroot in cold water and add that. A little port wine added to this soup gives a very nice flavour to it.

Fish Soup. Get a sole, whiting or a small haddock, wash and scrape it very clean and take out the eyes. Without removing the flesh from the bones cut the fish up into pieces. Cover those with cold water in a saucepan, adding a little salt. Skim when the water is boiling, and after a few minutes' boiling take out a few of the nicest pieces of fish and lay them aside on a plate. After about an hour's boiling strain the fish and the water in the pan and rub any white pieces of the fish through the strainer. After rinsing the pan melt a small piece of butter in it. Break about $\frac{1}{2}$ oz. flour into cold water and put this also into the pan along with the soup which you passed through the strainer. Stir the mixture until it boils or the flour will stick to the bottom of the pan and get singed. Add the pieces of fish which you took from the fire before and boil those for a minute or two. Beat up the yolk of an egg with a little cream and add to the soup; serve hot.

Revelenta Soup. Mix a teaspoonful of revelenta smoothly in cold milk. Put a breakfastcupful of milk and a teacupful of water into a saucepan, and when boiling stir in the revelenta which was mixed with the milk and a little salt. Keep the soup boiling for half an hour, stirring to avoid singeing, and add a small piece of butter.

Barley Cream Soup. Wash 2 oz. of pearl barley and soak it for a night in cold water. Then put the barley into a saucepan with cold water to cover it, bring the water to the boil and pour it off the barley. Shred 1 lb. of knuckle of veal and put it into a saucepan with $2\frac{1}{2}$ pints of cold water, a little salt and the barley. Simmer until the barley becomes quite soft and then strain. Put the barley and the meat into a mortar, pound and press through a wire sieve. Put the pulp obtained in this way, with the fluid passed through the strainer, into a saucepan, bring it to boiling point again and keep it warm beside the fire. Beat up the yolk of an egg with a little cream and stir this slowly into the soup. It must not boil after you add the egg and cream.

Rice Soup. Put some mutton or chicken broth, from which all fat has been removed, into a saucepan, and add some well washed rice. When you have boiled the soup until the rice is quite soft, strain through a wire sieve rubbing the rice through this. Heat in a saucepan again. Beat up the yolk of an egg and some cream together, and stir this into the soup, but do not allow it to boil again. Tapioca or sago may be used instead of the rice.

Vermicelli Soup. Put two pints of milk into a saucepan, and bring it to the boil. Add slowly 2 oz. of vermicelli stirring all the time. Keep on stirring until the vermicelli is perfectly soft. When you have taken the soup from the fire, beat up the yolk of an egg and some cream, and stir those slowly into the soup.

Oyster Broth. Chop up eight fresh oysters, and put them with the liquor from them into a lined saucepan, add a cupful of cold milk, and heat slowly, stirring all the time. After simmering for five minutes, strain through a fine sieve, add a teaspoonful of cream, a little white pepper and salt, heat again and serve.

FISH.

Boiling Fish. If possible, have a fish kettle and strainer for the fish. If you do not possess this, any very large fish can be tied up loosely in a clean linen cloth.

Put salted water (1 teaspoonful of salt to a pint of water) into your fish kettle or saucepan, and only use enough to cover the fish, because too much water causes the fish to lose its flavour. Observe that you must not pour boiling water over the fish, but you put the fish into boiling water. The time for cooking fish will depend upon what kind of fish it is; whiting or flounder requires only five minutes, a sole should have seven minutes, haddocks ten or fifteen according to its size, and cod requires a quarter of an hour's boiling. Under-done fish, however, is very bad for an invalid, so that occasionally you must put a fork into the fish right to the bone, and if you find that the flesh is tender and easily leaves the bone, then the fish is sufficiently cooked.

Steamed Fish. Get a filleted whiting, sole, or haddock, and wipe it with a damp cloth. Cut it into nice pieces, and place those on a soup plate previously greased with a little butter. Sprinkle a little salt and white pepper on the fish, and squeeze a little juice from a lemon over it. This helps to make the fish look nice and white, and also adds to its digestibility. Cover the fish either with another plate or with the lid of a saucepan, and then place the plate over a

saucepan containing boiling water, keep the water boiling quickly all the time you are cooking the fish, and if the pieces chance to be large, turn them once while cooking. Usually after cooking for twenty minutes or half an hour the fish will be ready, but be sure that it is so before you serve it. The fish is really nicest when served on the plate in which it has been cooked, because then both it and the juice are nice and hot. This is one of the lightest ways in which you can cook fish, and patients like it very much when prepared in such a way.

Stewed Fish. Get a filleted whiting, sole, or haddock, wipe it with a damp cloth, and cut it into pieces. Rinse a nice saucepan, and put the pieces of fish into it. Sprinkle over them a little water, and pour over them rather more than a gill of milk and water. Put the lid on your saucepan, and simmer slowly for a quarter of an hour. Lift out the pieces of fish and place them on a hot plate, add a dessertspoonful of breadcrumbs, and a small piece of butter to the milk and water remaining in the pan, and stir over the fire for a little; add a little finely chopped parsley, and pour the sauce over the fish.

Broiled Fish. Small, flat fish may often be broiled, and to do this have a very clear fire which does not smoke. Wash the fish well and dry it, and then rub over it a very little melted butter. Lay it on the gridiron, and keep turning it very frequently, while you cook it for five or ten minutes.

Fried Fish. Remove the skin from the fish, wash and dry it, and dip it into a little flour. Beat up an egg and cover the fish with this, dipping it into breadcrumbs when you have done so. Place the frying pan on the fire with plenty of clarified fat or dripping in it, and, to test when this is hot enough, put a piece of bread into it. If the bread becomes immediately brown, then the fat is ready, and you place the fish in it. When you take the fish from the

fat, put it on a piece of porous paper, and serve quite hot on a folded serviette or a fish paper. Frying is not a good way in which to serve fish to a patient, because it is apt to prove indigestible owing to the fat absorbed.

Baked Fish. Get filleted haddock, sole, or whiting, and wipe it with a damp cloth. Divide the fish into two or four pieces, and lay those, with the side which was skinned uppermost, on a plate. Sprinkle over them a little white pepper and salt, and the juice from a lemon. Roll up the fillets, keeping the side which was next to the bone outermost, and then place them on end on a clean, greased tin or flat fireproof dish. Cover with a layer of greased paper, and bake until they are quite cooked (for about ten minutes) in a moderate oven.

Fish Cream. Take the flesh from the bone of fish, and when you have got about $\frac{1}{4}$ lb. of this, tear it in small pieces and pound it well in a mortar, or rub it through a sieve. Rinse a small saucepan, and put into it $\frac{1}{2}$ gill of milk and just a small piece of butter, when this is hot, stir into it 1 oz. of breadcrumbs. Keep stirring over the fire until the mixture becomes thick. Add this to the fish and pound both together. Beat up the white of an egg to a stiff froth, and switch up in a breakfast cup about half a gill of cream. Add those to the fish and other things, and grease a small bowl or jar with a little butter. Place the mixture in this, allowing the jar to be about three-quarters full, and tie over it a greased paper. Place the basin in a saucepan, and keep the water surrounding the jar boiling until the cream firms. Turn it out gently, and serve hot with a little white sauce.

Fish Custard. Cut 1 lb. of filleted haddocks into pieces, and put them into a pie-dish, sprinkling over them a little pepper and salt. Mix a dessertspoonful of flour smoothly into a teacupful of milk, add to this a well-beaten egg and a teaspoonful of melted butter.

Pour this mixture over the fish, and bake in a moderate oven for rather more than half an hour.

Fish Omelette. Get 3 oz. of cooked fish, take away all skin and bone, and chop it up. Add this to the yolks of three eggs along with some finely chopped parsley and pepper and salt. Beat them all together until they are of a creamy consistency. Next beat up the whites of three eggs very stiff, and stir them thoroughly into the chopped fish and the yolks.

Melt a piece of butter like a walnut in size, or, it may be, a little larger in your omelette pan, and pour the mixture quickly into this. Stir, more especially on its upper surface, until it is beginning to set. Hold it over the fire until it is browned on the under side, and then, slipping a knife under it, turn either side towards the middle. Serve as quickly as possible on a hot dish.

Fish Pudding. Have about 1 oz. of rice well cooked, and add a beaten egg to it. Rub into the rice about 2 oz. of uncooked fish free from skin and bone, and cut into very small pieces; add salt and pepper. Put the whole into a small greased pie-dish. Sprinkle some breadcrumbs over it, and place above those small pieces of butter. Bake for a quarter of an hour and serve.

Sauce for Boiled Fish. Melt 2 oz. of butter in a saucepan, and mix a dessertspoonful of flour smoothly into this. Then pour in a teacupful of milk and a tablespoonful of the water in which you boiled the fish. Keep stirring until this comes to the boil. Boil for three minutes, and add any seasoning that your patient may like.

Egg Sauce. Make the sauce as above. Boil an egg quickly for twenty minutes, and then quickly put it into a basin with cold water. Remove the shell and pass the white through a wire sieve adding it to the sauce. Rub half the yolk through the sieve, and when you have poured the sauce over your patient's fish, sprinkle this over it

POULTRY, GAME, AND WILD FOWL.

Boiled Chicken. Skin and truss a chicken, rub it over with lemon and sprinkle a little pepper and salt over it. Then tie it up in greased paper and put it into boiling white stock, if you have that, or if not, into boiling water. Let it simmer very slowly until it is quite tender. It may be served with little rolls of bacon if the patient can digest these. Cut a few *very* thin slices of streaky bacon and remove the rind from them. Roll them up, put them on a skewer and cook in a roasting tin in an oven. Make the following sauce with which to serve the fowl. Melt a very small teaspoonful of butter in a saucepan, and stir into this $\frac{1}{4}$ oz. of flour smoothly, cook for a minute, and then, drawing the pan to the side of the fire, add $\frac{1}{2}$ teacupful of milk and $\frac{1}{2}$ teacupful of the stock which you boiled the chicken in, stir continually until it boils, and then after a few minutes boiling take it from the fire and pour over the chicken.

Stewed Chicken. Cut up half a chicken neatly into joints. Take away the skin from it and wipe the pieces with a damp cloth. Put them into a saucepan with less than $\frac{1}{2}$ pint of water. Add a little celery, or, if you cannot have that, a piece of an onion. Stew until the meat is tender. Then take out the pieces of chicken and keep them warm while you make a sauce. Break up a small quantity of arrowroot in a little cold water, and add this to the liquid in the pan. Stir constantly, and keep boiling for about five minutes. Remove from the fire, stir in the yolk of an egg, and pour over the pieces of chicken.

Chicken Stewed in Milk. Cut half a chicken neatly into joints. Remove the skin and put it into a jar with a teacupful of milk and a little pepper, salt, and some celery. Tie a piece of greased paper over the jar and place it in a saucepan with hot water. Keep this water simmering until the chicken is tender, and

see that if the water boils down you add some more. Then, when the chicken is cooked, take out the pieces and put the liquid in the jar into a saucepan. Break up a little arrowroot in some cold milk, add it to the milk in the pan, and keep stirring until it boils, add a tablespoonful of cream, and pour the sauce over the pieces of chicken.

Broiled Chicken. Get a very young, tender chicken, and cut it right down the middle from head to tail. Flatten one half with your hand, and spread a little melted butter over it. Sprinkle with pepper and salt, and lay it on the gridiron. Keep basting the upper surface with a brush dipped into melted butter, and, after twenty minutes, turn it on the other side and baste as before for ten minutes. Be careful not to put the gridiron too near the fire. When the chicken is cooked lay it on a nice hot plate with little rolls of bacon like those described for using with a boiled chicken. Put a little of the melted butter over the chicken.

Roast Chicken. Truss the chicken, and put a little bit of paper over the breast to prevent that from becoming too brown. Cook in a moderate oven, keeping it well basted with butter or dripping. It will take a half to three-quarters of an hour to cook. Then serve on a hot plate, pour off any fat from the tin in which it was cooked, and rinse this with some hot, brown gravy to serve the chicken with.

Chicken Cream. Get the breast of a chicken. Rub it dry, and put it through a mincing machine. Put half a teaspoonful of butter into a saucepan, add $\frac{1}{2}$ gill of milk and a small mace leaf, stirring over the fire until boiling, and then add 1 oz. of breadcrumbs. Stir until the mixture becomes thick. Then, taking out the mace leaf, put the mixture and the minced chicken into a mortar, pound and rub through a fine sieve, adding to it a little pepper and salt. Switch $\frac{1}{2}$ gill of cream until it is thick, and beat up the white of an

egg to a stiff froth. Add those to the mixture, and stir all together lightly. Put the whole into a basin or jar, which must not be more than three-quarters full because the mixture will rise in it. Cover with greased paper, and place the jar in a saucepan with hot water. Keep the water surrounding the jar boiling until the cream is firm and well risen. Take the jar then from the water, and on allowing it to stand for a moment after you remove the greased paper, turn it gently out on a hot plate. Serve with the sauce used for boiled chicken.

Potted Chicken. Have $\frac{1}{2}$ lb. of cooked chicken or game from which all skin and bristle has been removed. Mince this very finely, and put it into a mortar with 4 oz. of melted butter and a little salt and pepper. Pound all together, and then rub through a fine sieve. Pack into little pots with a little melted butter on the top. A little of this on thin slices of bread will often tempt a patient to eat and gives added nourishment which is very easily taken.

Minced Chicken and Egg. Cut up the remains of a cold chicken, and stew its bones and skin for an hour. Strain, cool the liquid, remove any fat from it, and put it again into the saucepan. Mix a tablespoonful of flour smoothly into a teacupful of milk, and when the liquid in the saucepan is almost boiling stir the milk and flour into it. As soon as it is boiling put in the flesh of the chicken previously minced, and when it is hot, but not boiling, take it from the fire. Butter a pie-dish, put at the bottom of it some breadcrumbs and gravy, and then pour in the mixture in the saucepan. Spread some breadcrumbs over it, and break eggs here and there over those, putting a little pepper and salt on each. Again strew breadcrumbs over those. Bake in a quiet oven until the whites of the eggs set.

Chicken Panada. Cut $\frac{1}{4}$ lb. of the breast of a chicken into small pieces, and put it into a cup with a little cold water and salt. Tie a greased paper over this

and place it in the saucepan with hot water. Let it steam for one and a half hours, and then put the mixture into a mortar, pound and rub through a sieve. Next put it into a small saucepan and add 2 table-spoonfuls of cream. When hot serve on toast.

Boiled Rabbit. Wash a rabbit thoroughly, dry it and cut it into nice pieces. Put it next into a saucepan with cold water to cover. When this comes to the boil pour it away, and again wash the pieces of rabbit. Put the rabbit again into the saucepan with enough water to cover it along with pepper and salt. Simmer slowly until tender, and serve with the sauce given for boiled chicken.

Stewed Rabbit. Get some neat pieces of rabbit, steep in a little salt and water and dry them. Melt 2 oz. of butter in a stewpan and mix smoothly into this 2 oz. of flour. Add some small pieces of onion. Next put in the pieces of rabbit and brown them nicely on both sides. Then add some stock and a little ketchup. Put the lid on the saucepan and simmer slowly until tender.

Rabbit Stewed in Milk. Put some pieces of rabbit into a saucepan with cold water and bring this to the boil, then pour away the water and rinse the pieces in cold water. Put them next into a jar with milk, pepper and salt, and whatever seasoning may be preferred. Cover the jar with buttered paper and put it into a saucepan with hot water. Then put on the lid of the saucepan and keep the water surrounding the jar simmering until the rabbit is tender. If the water in the saucepan boils down too far, add more hot water.

Roast Partridge. Truss a partridge which is in good condition and young. If the beak is easily broken the bird is likely to be young, and it is rather important that for roasting it should be so. Put a piece of bacon over the breast to improve the flavour, and roast from a quarter to half an hour.

Broiled Pigeon. Cut off the neck and feet of the bird, and then cut it down from head to tail, truss as you would for stewing and flatten on one side. Rub over with butter and season with pepper and salt. Then put it on the gridiron with the skin side uppermost for about twenty minutes, and then turn on the other side for ten minutes. Put some melted butter on a hot dish with some finely chopped parsley, and serve the pigeon in this.

Stewed Pigeon. Truss a pigeon cutting off both head and feet. Brown in a saucepan 3 oz. of butter, mix a little flour smoothly in this, and put in the pigeon with the breast downwards. Add some pepper and salt and a little ketchup. Stew until tender.

Roast Pheasant. Singe the bird and pick it very clean, take out the crop but leave the head and feet on, and turn the head under the wing. Hold the wings by a skewer and twist the feet up closely to the body and fasten them with a skewer also. Put the bird into a good oven, keep it basted with butter, and it should be ready in an hour.

Roast Woodcock. After singeing and picking the bird clean, take the bone out of the neck and twist the head under the wing. The bill can be used instead of a skewer. Put a piece of toasted bread under the bird, place it in the oven and keep it basted with butter. In about half an hour the bird should be quite cooked. Then put the toasted bread on the dish with just a little melted butter poured over it, lay the woodcock on the toast and serve. Snipe may be cooked in the same way.

MEAT.

Steamed Chop. Wipe the chop with a damp cloth and trim away some of the fat from it. Then shape it nicely. Grease a plate, lay the chop in this, and

sprinkle a little salt and pepper over it. Place the plate over a saucepan with boiling water and then cover the chop with a second plate. After twenty minutes turn the chop. This is a most digestible way in which to cook the chop, but see that you keep the water below it boiling very quickly so that it may be thoroughly cooked.

Stewed Chop. Wipe the chop and trim away some of the fat. Put it into a jar with a little salt and water, and about a teaspoonful of rice, which has been well washed. Cover the jar with a greased paper and put it into a saucepan with enough cold water in it to reach half way up the sides. Then put the lid on the pan and steam about two hours, adding more water when that in the jar boils down. Serve the chop on a hot plate, pouring the rice above it.

Broiled Chop. Have the chop cut fairly thick from a piece of the best mutton. Remove the skin and some of the fat. Rub the gridiron with some of this and place the chop on it. Cook over a clear, bright fire for seven or ten minutes turning it constantly. Serve on a very hot dish, sprinkling a little salt and pepper over the chop.

Fried Chops. Wipe the chop and cut off some of the fat from it. Put 1 oz. of butter into a clean frying pan, and heat it over the fire until it is very hot. Brown the chop on one side, and then turn it and brown on the other. Keep on turning occasionally until it is cooked. Then lay the chop on a piece of white paper to get rid of the grease and serve on a hot plate.

Veal Mince. Mince some cold veal with a small quantity of boiled ham, and season with white pepper and salt. Put a little stock into a saucepan and add the veal, stir till hot and then keep it just simmering by the fire for a little. Then stir in a teacupful of good cream, place on a hot dish, and serve with a poached egg above it.

Veal Quenelles. Wipe $\frac{1}{4}$ lb. of veal and put it through a mincing machine. Place a little butter in a nice, little saucepan, heat this and stir about $\frac{1}{2}$ oz. of flour smoothly into it, add the milk, and stir until the mixture thickens. Put part of a beaten egg into a mortar along with the mince, and add the mixture in the saucepan. Pound all well together and pass through a sieve. Dip a spoon into warm water and take up a spoonful of the mixture in it. Next put a knife into hot water and shape the mixture in the spoon making it high in the centre. It should be smooth and very much the shape of an egg. Remove it from the spoon now with a second spoon also dipped in warm water laying it into a greased pan. Don't place the quenelles too close together in the pan, and pour in gently enough boiling water to reach half way up the quenelles. Place the pan over the fire for about twelve minutes until they are cooked and firm, and then drain them on a clean cloth. Serve on a neat square of toast with some beef tea round them.

Broiled Steak. Get a piece of steak from the ribs or the haunch bone. Heat the gridiron and rub a little suet over it, lay the steak on it and place it over a very clear bright fire. Turn the gridiron frequently, and the time for cooking will depend upon the thickness of the steak, probably seven to ten minutes will do. Serve on a hot dish, sprinkling over the steak a little salt.

Steamed Steak. Cut $\frac{1}{2}$ lb. of steak into pieces, dip them into flour, pepper and salt. Place a little finely chopped onion in each and roll them up. Then place the pieces in a little jar or basin with a tablespoonful of beef tea and a little ketchup. Cover the basin with a piece of greased paper and steam for two and a half hours.

Mince. This should be prepared specially for the invalid from the beginning, because butcher's mince has too much fat in it. Get a $\frac{1}{2}$ lb. of lean, new and

juicy meat, and remove all skin and fat from it. Pass it through the mincing machine and place it in a saucepan with pepper and salt and $\frac{1}{4}$ gill of cold water. Beat the meat and water together over the fire with a spoon, and when it has lost its red colour, add $\frac{1}{4}$ gill of hot water. Simmer very gently by the fire for twenty minutes. Remove any fat possible, serve on a hot dish with small pieces of toast.

Beef Cream. Get $\frac{1}{4}$ lb. of lean and juicy meat, wipe it with a damp cloth, and shred it finely. Melt a little butter in a small saucepan, and mix smoothly in this about $\frac{1}{4}$ oz. of flour. Then pour into this $\frac{1}{2}$ gill of beef tea, and stir until the mixture boils. Pour it then into a mortar with the beef and a little pepper and salt. Switch an egg and add this also, then pound all well together and rub through a wire sieve. Next stir 1 oz. of good cream into the mixture and put the whole into a little greased basin, cover this with greased paper and steam for fifteen minutes until the cream is firm. Then take the basin from the fire, and after allowing it to stand for a little, turn the cream out on a hot plate, and serve with a little beef tea put round it like gravy.

Beef Quenelles. Remove all fat from $\frac{1}{4}$ lb. of the best steak, pass it once or twice through a mincing machine, and put it into a mortar. Then add 3 dessert-spoonfuls of breadcrumbs, a little salt and pepper, and a beaten egg, and pound all well together. Add just a little beef tea, being careful not to make the mixture too moist. Rub the whole through a wire sieve, and then shape and cook as in making veal quenelles. Mutton may be used instead of beef if preferred.

Raw Meat Balls. Scrape $\frac{1}{2}$ lb. of lean and new meat until only the fibre of the meat is left. Then mix the meat pulp with cream, seasoning it with salt and pepper, and roll it into balls. Put a very little butter on the surface of a hot baking tin to keep the balls

from sticking. Roll the balls over this to get rid of their raw appearance.

Raw Meat with Milk and Sugar. Serape $\frac{1}{2}$ lb. of lean and new meat until only fibre is left behind. Then sweeten the meat pulp with a little sugar, and add just enough milk or cream to make the mixture of the consisteney of arrowroot. Rub through a wire sieve.

Raw Meat Sandwiches. Get 2 oz. of lean and very new meat, tear it up into shreds, and pound in a mortar. Then rub it through a fine sieve. Next cut some *very* thin sliees of bread, put a little butter on these, and put a layer of the meat, seasoned with pepper and salt, between the two sliees. Cut them into small squares of about an inch. Patients like those sandwichees very much, as a rule, when they are nicely made. They must never, however, be prepared in the sickroom. Sometimes thin toast is used instead of the bread.

Stewed Tripe. Have the tripe thoroughly cleaned and soaked in water for a time. Cut it into pieees, and put it into a saucepan with enough cold water to cover it. Boil, pour this away, and add cold water to the tripe, and, when boiling, again pour the water off it. Add eold water again, and keep this simmering for ten or twelve hours. Add more hot water as that in the pan boils down. When the tripe is tender and soft, pour it, along with the liquid in which it was cooked, into a basin. It ean be set aside and cooked when required, or it may be stewed at once.

Melt a teaspoonful of butter in a saucepan, and pour into this, $\frac{1}{2}$ gill of the liquid in which you cooked the tripe, and $\frac{1}{2}$ gill of milk. Stir over the fire until boiling. Lay $\frac{1}{2}$ lb. of the tripe into the pan with a little white pepper and salt along with a little bit of an onion, previously boiled. Let the tripe stew slowly for a quarter of an hour. Add a little cream to the juiee surrounding it, and serve on a hot plate with small squares of toast laid round it.

Baked Tripe. Prepare the tripe as for stewing, and cut into small pieces. Cut some pieces of bread and remove the crusts. Butter those, and put alternate layers of bread and butter and tripe, over which you sprinkle a little white pepper and salt, into a greased pie-dish. You finish with a layer of bread and butter, the buttered side of the bread being uppermost. Add a little milk and tripe liquor to the pie-dish, and let it stand until the bread is quite soft. Bake in a moderate oven for a quarter of an hour.

Stewed Sweetbread. Put a sweetbread into cold water for over an hour and then let it boil for five minutes. Remove all fat and skin from it, and cut it into pieces. Put it next into a small saucepan with a gill of white stock, and keep this simmering until the sweetbread is tender. Toast a slice of bread after removing the crusts, place this on a hot dish and put the sweetbread above it. Keep them warm while you make the sauce as follows. Break a teaspoonful of flour or arrowroot in cold water and stir it into the liquid in the pan; then stir in a dessertspoonful of cream and pour this over the sweetbread. Serve very hot.

Fried Sweetbread. Wash a sweetbread and boil it for half an hour, trim away all fat, and when cold cut it into slices. Beat up an egg and add to it a little salt and white pepper. Dip the slices of sweetbread into this and then into breadcrumbs. Fry a nice light brown. Place the sweetbreads on a hot dish, surrounding them with small squares of buttered toast or well boiled rice.

VEGETABLES.

Boiled Potatoes. Wash the potatoes thoroughly and put them into some fresh water ready for paring. Then remove the skin as thinly as possible and scrape out any eyes or black specks. Keep them in

water until you cook them. They should be put into a pan with cold water and salt, put on the lid and bring the water as quickly as possible to the boil. Then keep it simmering until the potatoes are cooked. Too much water ought not to be used or the potatoes are apt to be shaken about too much. When they can be easily pierced with a fork pour off every drop of water, holding them back with the lid of the pan. Remove the lid and hold the pan over the fire until the potatoes become dry. It is well when cooking for an invalid to pass them through a potato masher. Serve very hot.

Boiled Cauliflower. Choose a fresh, young cauliflower, cut it neatly, wash it well, and have it in salt and water for a little. Put it into salt and water freshly boiling, placing the flower downwards. Keep the lid off the saucepan and boil until the flower is tender, but not broken. When ready lift it out carefully and serve with a little white sauce.

To Boil Spinach. Wash the spinach very thoroughly to get it free from grit. Then put it into boiling water with a little salt and soda in it. Cook for about half an hour. When tender drain it on a wire sieve, being careful to handle it gently. Run cold water on it, and, when this has run off, beat it perfectly smooth with a wooden spoon. Serve with a little lemon juice. A poached egg on spinach makes a very nice dish for an invalid, as spinach is a vegetable which is very easily digested.

Baked Tomatoes. It is best to give tomatoes to an invalid baked, as then they have more flavour. Wipe and place them in a greased fireproof dish and place a greased paper above them. Bake from seven to ten minutes in a moderate oven.

Baked Tomatoes another way. Cut the tomatoes in slices, and put a layer of breadcrumbs and a layer of tomatoes alternately into a greased dish. Put pieces of butter on the top and bake.

Vegetable Marrow. Peel the marrow carefully, removing the seeds and cutting it into quarters. Place in cold water and then cook in a saucepan with a little salt. Boil gently, keeping the lid off the pan. When properly cooked the marrow should be tender and transparent. Serve on a hot dish, sprinkling on a little salt and pepper and some lemon juice.

Vegetable Marrow with Milk. Pare carefully and cut into quarters. Then place the pieces in a pie-dish, cover with milk, and let this simmer until the vegetable is tender. Then add a little butter and salt. Thicken the milk with a little arrowroot broken in water, letting it boil in doing so.

Celery. Choose some nice, fresh, crisp celery. Wash and brush it in cold water, cutting away any discoloured parts. Cut the stalks to an equal length and tie them together with white tape. Place them in cold water and then boil them in salted water for about half an hour. Drain and serve on toast.

Stewed Celery. Cut the celery, after washing, into pieces about an inch in length. Put them into a pan with enough milk to cover. Simmer until they are tender, then drain and thicken the milk with a little arrowroot broken in cold water, add a little butter, season with salt and pepper, and boil for a few minutes. Pour this over the celery and serve with toast.

Stewed Onions. Place a large Spanish onion in a pan, and pour over it a little water and pepper and salt. Stew slowly for three hours and add more hot water when necessary; put on a very hot dish, pour a little beef tea round it, and sprinkle a few chopped capers over the onion.

Boiled Lettuce. Wash the lettuce thoroughly, separate the leaves and let them lie in cold water for a little. Next take them from this and put them into boiling water and a little salt. Keep the lid off the pan and boil for about twenty minutes, removing any scum which may collect. Drain and then chop up

the leaves. Put them again into a saucepan with a little pepper and butter. Serve when hot again.

Parsnips. Boil until quite tender. Mix in a saucepan a teaspoonful of butter, and add to this pepper and salt and half a teaspoonful of milk. Break a little arrowroot in cold water and thicken the milk with this. Stir until it boils, then add the parsnip cut in pieces and serve hot.

Young White Turnips. Pare and wash, and then boil in salt and water. When nearly tender cut into pieces, and stew in milk and a little butter seasoned with white pepper and a little salt. When quite tender remove the turnip and thicken the milk with arrowroot. Pour the sauce so made over the turnip. Serve hot.

Mashed Turnip. Wash, cut and boil the turnip. Place it in boiling water with a little salt and keep this boiling quickly. When soft press the turnip through a sieve or a potato masher. Put a small piece of butter into a saucepan, when this is melted put in the turnip, flavour with salt and white pepper, and stir until very hot.

To Boil Green Peas. Shell some young peas and put them into a stewpan with plenty of boiling water. Add salt and a little sugar. Boil for twenty minutes, then drain in a collander and serve at once.

Boiled Rice. Wash 2 oz. of rice and put it on the fire with about 1 breakfastcupful of water and a little salt. Keep it covered with the lid of the saucepan and let it boil till tender. Then it will be cooked in a way in which it can be used instead of potatoes.

Stewed Rice. Wash 2 oz. of rice well, and put it into a saucepan with a gill of cold water. Cook slowly until the water is absorbed. Then add a gill of beef tea or stock and cook until the grains of the rice are quite soft, as they always must be for an invalid.

PUDDINGS.

Arrowroot boiled in Milk. Get $\frac{1}{2}$ pint of milk and into a small quantity of it break up $\frac{1}{2}$ oz. of arrowroot. Put the remainder of the milk into a saucepan and add the milk and arrowroot. Keep stirring until it boils. Then let it boil for ten minutes so that the arrowroot may be thoroughly cooked. Sweeten to taste. Water may be used instead of milk in preparing the arrowroot. Cornflour may be made in the same way.

Arrowroot Pudding. Cook the arrowroot as above. Beat up the yolk of an egg and, when the arrowroot is sufficiently cooled, mix this into it. Add a pinch of salt to the white of the egg and beat it up to a stiff froth. Stir this gently into the arrowroot, put the whole into a greased pie-dish, bake in a moderate oven and serve at once.

Junket. Put some sugar into 2 pints of new milk and make it lukewarm. Add a little grated nutmeg if flavouring is desired and pour the milk into the dish in which you mean to serve it. Stir into it a teaspoonful of pepsine. Leave the milk in a cool place until it sets. Whip some nice fresh cream, spread it above the junket and serve.

Cornflour shape. Get a pint of milk and into a little of it break 2 oz. of cornflour. Add this to the remainder of the milk and stir the whole in a saucepan until it boils. After boiling ten minutes take the cornflour from the fire, stir in the beaten yolk of an egg, and add any flavouring desired. Rinse a mould with cold water, pour the cornflour into this and allow it to set.

Rice Pudding. Wash thoroughly 1 oz. of whole rice. Put it into a saucepan with sufficient cold water to cover it, bring the water to the boil, and then pour it off the rice. Then pour $\frac{1}{2}$ pint of milk over the rice, and let it simmer by the fire until thoroughly

cooked, stirring occasionally. Add sugar, a pinch of salt, and any flavouring desired, and take the rice from the fire. When it is cool enough, stir in the beaten yolk of an egg. Then beat the white to a stiff froth, and stir this also lightly into the rice, put the whole into a greased pie-dish and bake a nice brown in a moderate oven.

Steamed Rice. Wash thoroughly 1 oz. of whole rice, and put it into a jar with $\frac{1}{2}$ pint of milk and a little sugar. Cover the jar with a greased paper, and put it into a saucepan with boiling water. Let it steam for over an hour. Sago, tapioca, ground rice or semolina may be done in the same way.

Baked Rice. Wash $\frac{1}{2}$ oz. of rice thoroughly and place it with some sugar in the bottom of a greased pie-dish. Pour over it $\frac{1}{2}$ pint of milk and lay in this some tiny pieces of butter. Bake slowly for two hours.

Ground Rice Pudding. Put $\frac{1}{2}$ pint of milk into a saucepan and, when boiling, stir in 1 oz. of ground rice. When cooked add sugar and a little salt. Stir in a beaten egg, and bake for a little in a greased pie-dish.

Semolina Pudding. Put 3 gills of milk, 1 oz. of butter, 1 dessertspoonful of sugar, and a tablespoonful of semolina into a saucepan and stir until boiling. Cook for five minutes more, and take the semolina from the fire. Stir in the beaten yolk of an egg after it has cooled a little and then, very lightly, the white beaten to a stiff froth. Bake in a greased pie-dish.

Tapioca Pudding. Wash a tablespoonful of tapioca and let it stand in 3 gills of milk for about two hours. Then place it and the milk in a saucepan, stir until boiling and let it simmer for an hour, stirring occasionally. Observe that tapioca must always be cooked slowly. When it is sufficiently cooked draw the pan from the fire and add a pinch of salt and the sugar required. Beat up the

yolks of two eggs and stir them well into the tapioca. Then whip up the whites and stir those in lightly also. Put the pudding into a greased pie-dish, and bake seven minutes.

Tapioca Pudding with Fruit. Cook the tapioca with water instead of milk and use no eggs. When the tapioca is nearly cooked add apples in thin slices, rhubarb cut into small pieces or some raspberries, and cook those in the tapioca.

Barley Pudding. Wash 1 oz. of pearl barley and let it stand for a night in cold water. Then bring the water to the boil and pour it off the barley. Get a greased pie-dish and place the barley in the bottom of this and pour over it $\frac{1}{2}$ pint of milk. Put tiny pieces of butter into this and bake in a moderate oven.

Macaroni Pudding. Steep 2 oz. of macaroni for an hour. Let it boil in the water for twenty minutes and pour the water from it. Then add 8 oz. of milk and simmer for another twenty minutes. Add a pinch of salt and a teaspoonful of sugar and take the macaroni from the fire. Stir in a well-beaten egg, put the whole into a greased pie-dish, and bake until nicely browned.

Bread Pudding. Put $1\frac{1}{2}$ oz. of fine white bread-crumbs into a saucepan with $\frac{1}{2}$ oz. of butter, $\frac{1}{2}$ pint of milk and a little grated lemon rind. Stir until boiling and then allow the mixture to simmer for ten minutes. Add sugar and a pinch of salt. When sufficiently cool, stir in the yolk of an egg and then the white beaten to a stiff froth. Put the whole into a greased pie-dish and bake in a moderate oven for a quarter of an hour.

Rusk Pudding. Grease a little pie-dish and half fill it with broken rusks. Beat up an egg and add to it milk, sugar and a pinch of salt. Pour this over the rusk and let it soak for ten minutes. Bake from ten to fifteen minutes in a moderate oven.

Baked Custard Pudding. Beat up two yolks and the white of one egg with a teaspoonful of sugar. Pour in $1\frac{1}{2}$ gills of milk and mix all well together. Put the custard into a greased pie-dish and bake fifteen or twenty minutes.

Beef Tea Custard. Beat up the yolks of two eggs and the white of one. Add a little salt and pepper and 1 gill of beef tea, then mix all together, and pour into a little greased basin. Cover with buttered paper, and place the basin in a saucepan with boiling water, which should not be more than three-quarters the height of the basin. Cover the saucepan, and let the water in it boil for twenty minutes slowly. When cooked turn the custard out gently on a hot plate and serve.

Beef Tea Pudding. Pour 1 gill of hot beef tea over $1\frac{1}{2}$ tablespoonfuls of fine white breadcrumbs. Add an egg, well beaten, and any seasoning preferred. After soaking for a little, pour the whole into a little buttered basin, cover with a greased paper, and steam for twenty minutes.

Souffle. Melt $\frac{1}{2}$ oz. of butter in a small saucepan, and stir the same quantity of flour smoothly into this. Next pour in $\frac{1}{2}$ gill of milk, and keep stirring until the mixture boils and becomes thick. Add sugar, a pinch of salt, and a little lemon juice. Then take the mixture from the fire, and stir in the yolks of three eggs. Beat up the whites to a stiff froth, and stir those in lightly. Half fill a greased mould with the mixture, cover with greased paper, and steam twenty minutes.

Sweet Omelet. Grease a small frying-pan. Beat up the yolks of two eggs with a little sugar, and switch the whites very stiff on a plate. Mix them lightly with the yolks, and pour the whole into the frying-pan. Keep revolving this over the fire for seven or ten minutes, and then turn the omelet over a hot plate. Lay a little jam on the omelet, and turn it over this.

Blancmange. Put $\frac{1}{4}$ oz. of isinglass and 1 gill of milk into a small sauepan. When the isinglass is dissolved, put in any flavouring which the patient may like and 1 oz. of sugar. Then, without allowing the mixture to boil, take the pan from the fire, and stir in 1 gill of good cream. Put the whole into a small mould, previously rinsed with cold water, and set aside to cool. Turn out when required.

Cup Puddings. Beat up the yolk of an egg with 2 oz. of sugar, then beat 2 oz. of butter to a cream, and mix this up with the yolk and sugar. Beat the whites to a stiff froth, and then sift into the yolk and butter 2 oz. of flour, and put in a little carbonate of soda. Mix in the whites of the eggs lightly, and then butter two teacups and put the mixture into them. Bake in a moderate oven for three-quarters of an hour, and serve with a little wine sauce.

Roasted Apples. Rub the number of baking apples required with a dry cloth, and put them on a dish in the oven. Turn when necessary, and serve with sifted sugar on the dish in which they have been baked.

Stewed Apples. Put 1 gill of water, a little lemon juice, and 2 oz. of sugar into a stewpan. Bring this to the boil, and put into it $\frac{1}{2}$ lb. of apples pared, cored, and cut into pieces. Cook slowly for a quarter of an hour.

Bread and Apple Pudding. Stew two apples, and remove the crust from some bread and butter. Put a layer of stewed apple at the foot of a greased pie-dish, then a layer of bread and butter, again a layer of apples, and on the top bread and butter, the butter side being uppermost. If there is not enough juice among the stewed apples to soak the bread add a little sugar and water. Sprinkle some sugar on the upper layer of bread and butter, and bake until this layer is crisp and brown.

Apple Cream. Rub the pulp of baked apples through a fine sieve, and beat into it some very thick cream. Sweeten to taste, and serve in a glass dish.

Apples and Rice. Wash and boil 1 oz. of whole rice, with $\frac{1}{2}$ pint of milk, $\frac{1}{2}$ oz. of butter, and a little sugar. When the rice is sufficiently cooked take it off the fire, and add to it the yolk of an egg. Peel and core two apples, and cut them into quarters. Boil these until they are soft, but not broken, in $\frac{1}{2}$ pint of water, 2 oz. of sugar, and a few pieces of ginger. Put the rice in the middle of a glass dish, and lay the pieces of apple round it.

Stewed Prunes. Soak $\frac{1}{4}$ lb. of prunes in warm water for two hours. Put into a saucepan about $\frac{1}{2}$ teacupful of water, some sugar, and a little lemon juice. When this is boiling add the prunes, and keep them simmering for an hour.

Prune Pudding. Cook $\frac{1}{4}$ lb. of prunes with a little water, a piece of lemon rind, and some sugar until they are soft. Take out the stones, and remove a few of the kernels of these to use as flavouring. Mix 1 oz. of flour smoothly into $\frac{1}{2}$ tumblerful of milk. Beat two eggs, and add them to this, mixing all well together. Add the prunes and kernels, and 1 oz. of butter broken in small pieces. Pour the whole into a buttered mould, and steam for an hour and a half.

JELLIES.

Cut two calf's feet into pieces, splitting the hoof piece. Wash and scrape them well in warm water. Cut away any fat and remove the marrow from the inside of the bones. Then the pieces are put into a saucepan with cold water, which is brought to the boil. Pour off the water and again wash the pieces. After rinsing the pan, put the pieces into it again with 4 or 5 pints of cold water. Simmer slowly for six or seven hours, when the water will be reduced to half the original quantity. Strain through a hair sieve or a jelly bag and allow the stock so made to cool, when

it will be a stiff jelly. Remove every particle of fat from the top of the jelly, and then wipe the surface of it with a cloth dipped in boiling water. It is best not to make too much of the jelly at one time, so that as a rule once the stock is made it is simply used as required for making the jelly. Put 1 pint of the stock into a saucepan with 5 oz. of sugar, 1 gill of sherry, 3 cloves, 2 ins. of cinnamon stick, the yellow part of the rind of two lemons, and the juice of 3 or 4 lemons. Put in also the whites and crushed shells of 2 eggs. Place the pan on the fire and stir until the jelly is just beginning to boil, then stop stirring and let it boil up. Next cover the saucepan, and let it stand by the fire for ten minutes, so that the jelly will keep hot without boiling. Rinse a jelly bag in very hot water, and pour the contents of the pan into it, allowing those to run into a basin placed under the bag. The jelly will not be clear when first run through the jelly bag, and so you must put it through a second and even a third time, until you find that it is perfectly clear. Next add to the jelly about $\frac{1}{2}$ gill of brandy, and pour into moulds rinsed with cold water.

Oxfoot Jelly. Scald and clean 2 oxfeet, cut them in pieces, wash them well, and put them into a saucepan with plenty of water. Keep them boiling until the water is reduced to 2 quarts, and then after straining set the fluid aside for a night. Remove all fat from the surface of the stock and wipe it with a cloth wrung in hot water. Put half the stock into a pan with the yellow part of the rind and the juice of 3 lemons, the whites of 4 eggs, beaten to a stiff froth, and the shells broken down, 2 oz. of cinnamon stick, 5 cloves, and 7 oz. of sugar. Put the pan on the fire and stir its contents until boiling, then keep simmering for a quarter of an hour. Wring a jelly bag in hot water, fasten it to a stand or over two chairs, and run the jelly through it until

clear. Rinse a mould with cold water and put the jelly in it.

Jelly à la Russe. Melt some calf's foot jelly, let it cool, and, before it sets, whip it until it is spongy and light. Serve on a glass dish.

Milk Jelly. Dissolve $\frac{1}{2}$ pint of stiff calf's foot jelly, and add to it an equal quantity of milk. Rinse small cups or moulds with cold water and put the jelly into those to set.

Claret Jelly. Soak 2 oz. of gelatine in 2 gills of cold water, then pour over it another 2 gills of boiling water, stirring all the time. Put into a lined pan $\frac{1}{2}$ lb. of sugar, the yellow part of the rind, and the juice of a lemon, a small pot of red currant jelly, and the whites (beaten) and shells of 2 eggs. Stir until boiling, let it boil for five minutes, take it off the fire, and add 2 tablespoonfuls of brandy. Wring a jelly bag in hot water, run the jelly through this until clear, add 1 pint of claret, and put into moulds to set.

Port Wine Jelly. Put into a lined saucepan 3 gills of port wine, 1 gill of water, 1 oz. gelatine or isinglass, 2 oz. sugar, 1 tablespoonful of red currant jelly, the yellow parts of the rind, and the juice of a lemon, and 2 ins. of cinnamon stick. Stir over the fire until boiling, then simmer for ten minutes. Strain as before, and set in moulds.

Lemon Jelly. Soak $1\frac{1}{4}$ oz. gelatine in $\frac{1}{2}$ pint of cold water, and then pour in the same quantity of boiling water. Place in a pan, and add 7 oz. sugar, the juice of a large lemon, and the beaten white and shell of an egg. Stir until boiling, boil for five minutes, strain until quite clear, and set in small moulds previously rinsed with cold water.

Orange Jelly. Peel the rind very thinly off an orange, and put it into a saucepan with 1 gill of cold water, 1 gill of orange juice, $\frac{1}{2}$ oz. gelatine, the juice of a lemon, and 1 oz. of sugar. Simmer for ten minutes,

skin and strain until clear. Place in small moulds, and leave it to set in a cool place.

Apple Jelly. Pare and core an apple. Then cut it into pieces, and place those in cold water. Place the pieces of apple in a pan with $1\frac{1}{2}$ gills of water and the rind of a lemon. When the apples are soft, drain them through a fine sieve. Dissolve $\frac{1}{2}$ oz. of gelatine in $\frac{1}{2}$ gill of cold water, and strain this into the apple pulp. Add 3 oz. sugar, the juice of half a lemon, and the beaten white and shell of an egg. Beat all up together, strain through muslin, and put into moulds to set.

Grape Jelly. Squeeze the juice from 1 lb. of grapes, and add to this the juice of a lemon, and strain through muslin. Mix in this juice 1 gill of syrup and $\frac{1}{2}$ oz. of prepared isinglass. Mix all lightly together, and put into moulds to set.

Coffee Jelly. Put $\frac{1}{4}$ oz. of isinglass into a pan with $\frac{1}{2}$ pint of strong clear coffee and a teaspoonful of sugar. Let this simmer for ten minutes, and then, if the isinglass is quite dissolved, strain and put into wet moulds to set.

Chicken Jelly. Cut all the flesh from the bones of a chicken. If desired the breast can be put aside and cooked by itself, as the jelly will be quite good without it. Keep back all fat, cut the flesh into pieces, and chop up the bones. Skin the feet, and use the neck and gizzard also. Put the whole into a saucepan and cover with water, then bring this to the boil and skim. Add a bay leaf and a small quantity of celery, and keep the whole boiling for three and a half hours, adding more water if that in the pan boils down too much. Strain through a fine sieve, stand till cold, and remove all fat.

Beef and Veal Jelly. Prepare a calf's foot as you would for making calf's foot jelly. Get 1 lb. of shin of beef, and 1 lb. of knuckle of veal, cut the meat from the bones and tear it into small pieces. Keep back all marrow and fat, and put beef, veal, bones,

and the pieces of calf's foot into a saucepan with a little salt and 3 pints of cold water. Let the whole simmer for five hours, or until the water is reduced to half the original quantity. Strain through a fine sieve, stand until cold, and remove all fat.

Beef Tea Jelly. When a patient grows tired of beef tea, he will sometimes take it quite readily when prepared as a jelly. Dissolve $\frac{1}{4}$ oz. of isinglass or $\frac{1}{2}$ oz. of gelatine in $\frac{1}{2}$ pint of beef tea, and allow it to set.

EGGS.

To Poach an Egg. Have some boiling water in a shallow pan and add to this a little salt and vinegar. Break the egg into a cup and put it gently into the water, which should be boiling very quickly. After cooking for two minutes lift the egg out gently and lay it on buttered toast.

Scrambled Egg. Put a piece of butter into a small saucepan and shake it until melted. Then add 2 tablespoonfuls of milk, or better still, of cream. Beat up an egg, add it to the milk in the saucepan, stirring constantly till it becomes thick. Serve on a neat square of buttered toast.

Omelette. Beat up 3 eggs, and add to them pepper and salt. Melt 2 oz. of butter in a little omelette pan, skim it, and pour the beaten egg into the pan. Keep moving the pan round the fire until the omelette is of the consistency of thick cream, then rest it on the fire just for a minute, and swiftly turn one half of the omelette over the other. Let the underside become a nice brown, and then gently turn the omelette into a hot dish. It should be firm outside but soft and creamy inside.

Baked Eggs. Pour a little gravy into a baking tin, and mix it with a little finely chopped onion and parsley. Set it in an oven until it simmers. Break

the eggs into this, keeping them apart from each other. Strew over them fine breadcrumbs and pepper and salt. Bake for three minutes, and then pour over a little more hot, light gravy. Add some more very fine breadcrumbs, and bake until the eggs are set. Serve in the tin.

Eggs with Tomato Sauce. Melt a little butter in a pan, break an egg into a teacup, and then turn it into the pan. Add in the same way whatever more eggs may be required. Sprinkle them with a little salt and pepper, and place them on a hot dish, pouring over them some tomato sauce.

Snow Eggs. Boil a teacupful of milk in a saucepan with a little sugar. Beat up the yolk of an egg with a little sugar, and then the white to a stiff froth. Take a large spoonful of the latter and place it for a few moments on the top of the milk, turn it, and, when solid enough, lift it carefully on to a hot plate. Cook the remainder of the white in the same way. Then add the yolk of the egg to the hot milk, mix well, and boil for a few minutes. Pour this mixture round the white.

Egg Sandwiches. Boil an egg hard, and pass the yolk of it through a sieve. Mix this powdered yolk with an equal quantity of creamed butter, season with pepper and salt, and spread between very thin slices of bread and butter.

Jellied Eggs. Beat up an egg and dissolve an equal quantity of stiff calf's foot jelly. When this has cooled a little mix the egg into it. Rinse small teacups or moulds with cold water and place the mixture in this to set. Turn out and serve.

"Albumenised" Egg. Let a raw egg stand in water for twelve hours. Then strain off the water very carefully and poach.

Egg and Milk. Beat up an egg with a little sugar, and pour on hot milk. Then beat both well up together for five minutes, and serve in a tumbler.

Egg Flip. Melt a lump of sugar in a little hot water, and add to it 1 gill of milk and a tablespoonful of brandy. Beat up the egg with a little soda water until it is light and frothy. Then stir in the milk and brandy, beating as you do it.

Egg Cream. Beat the yolk of an egg up with sugar, and the white to a stiff froth. Add to the yolk 1 tablespoonful of brandy, 1 gill of cream, and part of the white. Beat all well together, pour into a tumbler, place the remainder of the white on the top, and serve.

Egg with Claret. Beat up an egg well with a little sugar, add 2 tablespoonfuls of claret, fill up the glass with soda or potash water, and serve while still effervescing.

Egg with Port Wine. Beat up an egg and a teaspoonful of sugar together, add 1 gill of hot water, stirring well while you do so. Then stir in a wine-glassful of port, and serve in a glass previously rinsed with boiling water.

CAKES AND BREAD.

Toast. Cut the bread very thin, remove the crusts, and toast slowly to a light, uniform brown in front of a clear fire. If the patient's digestion is weak stand the toast up to cool, otherwise it may be buttered immediately and served hot.

Milk Scones. Mix together $\frac{1}{4}$ lb. of flour, $\frac{1}{2}$ teaspoonful of cream of tartar, $\frac{1}{4}$ teaspoonful of carbonate of soda, and a pinch of salt. Make into a dough with a little milk, roll out $\frac{1}{2}$ in. thick, and bake in a moderate oven.

Girdle Scones. Have the girdle very warm before you start, as the scones must be fired nicely. Mix together $\frac{1}{4}$ lb. of flour, $\frac{1}{2}$ teaspoonful of cream of tartar, and $\frac{1}{4}$ teaspoonful of carbonate of soda. Add

a little sugar and salt, and mix the milk into the flour with a knife. Roll out, cut to the proper size, and bake carefully, as those scones, when baked for an invalid, must not be tough.

Egg and Cream Scones. Mix together $\frac{1}{2}$ lb. of flour, a pinch of salt, and a small teaspoonful of baking powder. Rub 1 oz. of butter into those, and then beat up an egg, and add 1 gill of cream to it. Mix to a fairly stiff dough and turn this out on a floured board, pass the roller over it once, prick and cut into shapes. Bake in a quick oven, handling as little as possible.

Pancake Scones. Rub into a breakfastcupful of flour a teaspoonful of baking powder and some sugar. Beat up an egg and add to it about $\frac{3}{4}$ breakfastcupful of milk. Stir this carefully and gradually into the flour until you have a thick creamy batter. Grease the girdle and put the mixture on it in teaspoonfuls. Turn once.

Wafer Scones. Mix $\frac{1}{2}$ lb. of the finest quality of flour with sweet cream to form a soft dough. Roll out as thin as a wafer, cut into squares and bake on a girdle, first on one side and then on the other.

Sponge Cake. Mix in a basin 5 oz. of castor sugar and a little grated lemon rind. Then add separately the yolks of 4 eggs, beating each well up with the sugar before you add the next. When all are added the mixture should be very light and creamy. Have mixed up together 2 oz. of flour and 2 oz. of potato flour, and stir this and the well-beaten whites of the eggs lightly into the yolks. Squeeze in a little lemon juice, stirring the mixture lightly over and over. Run it into a greased tin, which should not be more than half full, and bake in a moderate oven.

Sponge Fingers. Have the weight of an egg in butter, sugar and flour. Cream the butter and sugar together. Add the egg and a little of the flour and beat all well together. Stir in what remains of the flour and add a quarter teaspoonful of baking powder.

Spread the whole over a flat tin and bake in a moderate oven. Cut in halves, spread a little jam over one of those and lay the second above it. Cut into nice fingers.

PORRIDGE, GRUEL, Etc.

Porridge. Bring 1 pint of water and a little salt to the boil. When boiling sprinkle into it slowly about 2 oz. of oatmeal, stirring well to prevent lumps from forming. Simmer slowly for nearly an hour, stirring occasionally. Sometimes the meal is soaked in the water overnight.

Wheaten meal porridge sometimes proves more suitable than oatmeal for an invalid. It is cooked in the same manner as oatmeal, but requires to boil for longer.

Oatmeal Gruel. Pour $\frac{1}{2}$ pint of cold water over a tablespoonful of oatmeal, cover and let it stand for an hour, stirring occasionally. Strain off the liquid through a wire sieve, pressing the oatmeal as dry as possible. Add a little salt and a piece of butter, and stir until boiling. Boil for about seven minutes. Serve with a little nice cream.

If preferred the gruel can be made with milk instead of water, and so added nourishment is procured from it.

Barley Meal Gruel. Mix gradually into $\frac{1}{2}$ pint of milk a dessertspoonful of barley meal. Rinse a small saucepan, put the barley and milk into this and stir constantly until boiling. Boil for seven minutes and add salt to taste.

Benger's Food. Mix a tablespoonful of Benger's food in 4 tablespoonfuls of cold milk. Heat $\frac{1}{2}$ pint of milk and water in equal quantities to boiling point and pour this over the Benger's, stirring all the time. Cover and set aside for half an hour. Then boil the whole for a minute and sweeten if necessary.

INVALID DRINKS.

Tea. Choose a good tea to start with. Very often China tea is ordered for an invalid. See that the kettle used for boiling the water is clean both inside and outside, put fresh water into it and place it on the fire to boil. An earthenware teapot is usually the best to use, as it is more easily kept fresh and clean than a metal one. Use plenty of boiling water to heat the teapot. This is very important, in order that the heat of the water used for infusing the tea may be retained. It is only at a very high temperature that certain materials which give the tea its flavour can pass into the water. When the teapot has been well rinsed with boiling water put into it "a teaspoonful for each person and one for the pot." Then pour in the water newly boiling, because if the kettle has been boiling for some time the tea will taste flat and insipid. Cover the teapot with a cosy and keep it in a warm place. The time required for infusing the tea depends to some extent upon the variety used, but no tea should be allowed to stand too long. As a rule five minutes is the limit, and, if the tea is not to be used at once, it ought to be poured off the leaves into a second well-heated teapot. Try to get nice fresh cream for the invalid's tea, because then it will taste so much nicer. If both cream and sugar are being served with the tea put those into the cup and then pour in the tea. If lemon juice is used in place of cream add that afterwards. When the patient has finished his tea pour out the leaves from the teapot, wash it well in hot water, dry it, and let it stand with the lid open. Teapots can be had which have an inner, perforated case for the leaves, and that can be removed when the tea is sufficiently infused.

Milk Tea. Heat a little teapot with plenty of boiling water, and bring a breakfastcupful of milk to boiling

point. Put a teaspoonful of tea into the teapot and pour the milk over it. Keep the tea warm, but not boiling, for twenty minutes. Then the tannin in the tea will combine with the casein in the milk and gradually fall as a sediment to the bottom of the teapot. Hence the necessity for pouring milk tea very gently in order that this sediment will remain in the teapot. Don't drain the teapot when milk tea is being served.

Egg Tea. Beat up an egg with or without a little sugar and stir it into a cupful of hot tea.

Coffee. Coffee for an invalid must be well made, therefore begin by having it freshly roasted and ground, because if coffee is kept for some time after being roasted and ground, it loses its flavour. See that the coffee-pot to be used is perfectly clean. If this is not regularly and carefully washed an oily substance adheres to the sides of the pot and spoils the flavour of the coffee. The quantities used are usually a tablespoonful of coffee to $\frac{1}{2}$ pint of water. Sometimes chicory is added in the proportion of 2 oz. of chicory to each pound of coffee. Have the water freshly boiled, just as for making tea, and place the coffee in a hot coffee-pot. Pour the boiling water over it and keep the coffee-pot warm. A coffee-pot should if possible be used which will provide for the coffee being well strained, because good coffee is often spoiled by the grains remaining in it. Always remember that coffee to be good must be both strong and very hot.

Chocolate for an Invalid. Shred down 1 oz. of good chocolate, and place it with a cupful of milk in a saucepan. Stir over the fire until the chocolate is dissolved, but do not boil much. Beat up an egg, pour the chocolate over it, and stir both well together.

Cocoa. Cocoa nibs are purer and cheaper too, than, most of the powders sold. Crush the nibs slightly and soak them in cold water. Put them into a

saucepan with cold water, heat, and simmer slowly for about five hours. If the water boils down add more. Strain, and when cool remove the fat. Heat as required.

Thick Barley Water. Wash 2 oz. of pearl barley, and put it into a saucepan with cold water. When this boils pour it off the barley. Wash the barley again, and rinse the saucepan too. Next put the barley back into the saucepan with a quart of cold water and the yellow part of the rind of a lemon. Simmer for two hours and strain. Sweeten, and squeeze in the juice of half a lemon.

Thin Barley Water. Wash 2 oz. of pearl barley, and put it into a jug with the yellow part of the rind of a lemon and some sugar. Pour over this freshly boiled water, cover the jug, and let it stand until the water is cold. Then strain off the water and it is ready to use.

Rice Water. Wash 1 oz. of whole rice, and cut four large raisins in pieces. Put those and $\frac{1}{2}$ in. of cinnamon stick into a saucepan with 2 pints of cold water. Boil for one hour, and strain through muslin.

Apple Water. Cut two large, juicy, cooking apples up into thin slices, put them in a jug along with the yellow part of a lemon rind and 2 teaspoonfuls of sugar. Pour over those a pint of boiling water, and when cool, squeeze in the juice of half a lemon and strain.

Toast Water. Put a slice of bread, about $1\frac{1}{2}$ in. thick, into a very slow oven to dry. Let it be slightly browned, and then place it in a jug with 1 pint of cold water for one hour. Strain through muslin, and serve cold while still fresh.

Lemonade. Peel the rind off a lemon just as thin as possible. Put this into a jug along with two teaspoonfuls of sugar and the juice of two lemons. Pour on some freshly boiled water, cover the jug closely, and, when cold, strain.

Orangeade. Peel the rind off an orange very thinly, put it into a jug with a little sugar and pour on boiling water. When cool, squeeze in the juice of two oranges and one lemon, strain and serve.

Milk Lemonade. Mix together the juice of 2 lemons, $1\frac{1}{2}$ tablespoonfuls of sugar, and 2 tablespoonfuls of sherry. Pour 2 gills of boiling water over this, and add 2 gills of cold milk, stirring until the milk becomes curdled. Strain, and serve hot or cold as desired.

Milk and Barley Water. Have 1 oz. of pearl barley carefully washed, boil it for a quarter of an hour in water, and then pour the water away. Put the barley next into 2 pints of fresh water, and boil it slowly for about three hours, when you should have little more than half the original quantity of water. Put aside until cold, and, when you wish to use it, strain and add to it sugar and a little lemon juice and some cold boiled milk.

Rice Milk. Wash $\frac{1}{2}$ oz. of rice, rinse a saucepan, put the rice into it with $\frac{1}{2}$ pint of milk and a little sugar. Simmer very slowly until the rice becomes pulp, sweeten and serve either hot or cold.

Warm Soda Water and Milk. Bring about a teacupful of milk almost to the boil. Add some sugar, pour it into a large tumbler, and add an equal quantity of soda water.

Hot Milk. Heat the milk in a saucepan until there is a skin over it. Put a pinch of salt and a pinch of soda into a glass, and pour the hot milk over it. Do not keep back the skin, as it contains some of the nourishment in the milk.

Wine Whey. Heat $\frac{1}{2}$ pint of fresh milk, then pour in a wineglassful of sherry and stir until the milk curdles. Strain and serve. Sugar may be added to the whey if desired.

Lemon Whey. Rinse out a small saucepan, and put into it $\frac{1}{2}$ pint of milk and a little sugar. When it is boiling squeeze in a tablespoonful of lemon juice. Let

it boil up, when the milk will be curdled. Strain through muslin.

Cream Whey. Add two tablespoonfuls of nice cream to the wine whey after straining.

Treacle Posset. Heat a pint of milk, and then add to it 2 tablespoonfuls of black treacle. Strain through a piece of muslin, and serve very hot.



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